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ENCYCLOPEDIA BRITANNICA



ENCYCLOPÆDIA BRITANNICA.

C T E

Crystals
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Ctesiphon. **CRYSTALS**, in *Chemistry*, salts or other matters shot or congealed in the manner of crystal. See *CHEMISTRY Index*; and *CRYSTALLIZATION*.

CTESIAS, a native of Cnidos, who accompanied Cyrus the son of Darius in his expedition against his brother Artaxerxes; by whom he was taken prisoner. But curing Artaxerxes of a wound he received in the battle, he became a great favourite at the court of Persia, where he continued practising physic for 17 years, and was employed in several negotiations. He wrote the History of Persia in 23 books, and a History of the Indies: but these works are now lost, and all we have remaining of them is an abridgment compiled by Photinus. The most judicious among the ancients looked upon Ctesias as a fabulous writer; yet several of the ancient historians and modern Christian writers have adopted in part his chronology of the Assyrian kings.

CTESIBIUS, a mathematician of Alexandria, about 120 years before Christ. He was the first who invented the pump. He also invented a clepsydra, or a water-clock. This invention of measuring time by water was wonderful and ingenious. Water was let drop upon wheels which it turned: the wheels communicated their regular motion to a small wooden image, which by a gradual rise pointed with a stick to the proper hours and minutes, which were engraven on a column near the machine. This artful invention gave rise to many improvements; and the modern manner of measuring time with an hour-glass is in imitation of the clepsydra of Ctesibius.

CTESIPHON, a celebrated Greek architect, who gave the designs of the famous temple of Ephesus, and invented a machine for bringing thither the columns to be used in that noble structure. He flourished 544 B. C.

CTESIPHON, in *Ancient Geography*, a large village, or rather a fine city, of Chalonitis, the most southern province of Assyria. It was situated on the left or east side of the Tigris, opposite to Seleucia on this side; and built by the Parthians, to rival Seleucia. Here the kings of Parthia passed the winter (Strabo); as they did the summer at Ecbatana.

CTESIPHON was also the name of several noted persons of antiquity. 1. An Athenian, who advised his fellow citizens to crown publicly Demosthenes with a golden crown for his probity and virtue. This was opposed by the orator Æschines, the rival of De-

C U B

mosthenes, who accused Ctesiphon of seditious views. Demosthenes undertook the defence of his friend, in a celebrated oration still extant, and Æschines was banished. 2. A Greek architect, who made the plan of Diana's temple at Ephesus. 3. An elegiac poet, whom King Attalus set over his possessions in Æolia. 4. A Greek historian, who wrote a history of Bœotia.

CUB, a bear's whelp. Among hunters, a fox and marten of the first year are also called *cubs*. See *URSUS*.

CUBA, a large and very important island in the West Indies, belonging to Spain. On the east side it begins at 20. 20. N. Lat. touches the tropic of Cancer on the north, and extends from 74. 15. W. Long. It lies 60 miles to the west of Hispaniola, 25 leagues north of Jamaica, 100 miles to the east of Yucatan, and as many to the south of Cape Florida; and commands the entrance of the gulfs both of Mexico and Florida, as also the windward passages. By this situation it may be called the *key* of the West Indies. It was discovered by Columbus in 1492, who gave it the name of Ferdinando, in honour of King Ferdinand of Spain; but it quickly after recovered its ancient name of *Cuba*. The natives did not regard Columbus with a very favourable eye at his landing; and the weather proving very tempestuous, he soon left this island, and sailed to *Hayti*, now called *Hispaniola*, where he was better received. The Spaniards, however, soon became masters of it. By the year 1511 it was totally conquered; and in that time they had destroyed, according to their own accounts, several millions of people. But the possession of Cuba was far from answering the expectations of the Spanish adventurers, whose avarice could be satiated with nothing but gold. These monsters, finding that there was gold upon the island, concluded that it must come from mines; and therefore tortured the few inhabitants they had left, in order to extort from them a discovery of the places where these mines lay. The miseries endured by these poor creatures were such that they almost unanimously resolved to put an end to their own lives; but were prevented by one of the Spanish tyrants called *Vasco Porcellos*. This wretch threatened to hang himself along with them, that he might have the pleasure, as he said, of tormenting them in the next world worse than he had done in this; and so much were they afraid of the Spaniards, that this

Cub,
Cuba.

Cuba.

threat diverted these poor savages from their desperate resolution. In 1511, the town of Havannah was built, now the principal place on the island. The houses were at first built only of wood; and the town itself was for a long time so inconsiderable, that in 1536 it was taken by a French pirate, who obliged the inhabitants to pay 700 ducats to save it from being burnt. The very day after the pirate's departure, three Spanish ships arrived from Mexico, and having unloaded their cargoes, sailed in pursuit of the pirate ship. But such was the cowardice of the officers, that the pirate took all the three ships, and returning to the Havannah, obliged the inhabitants to pay 700 ducats more. To prevent misfortunes of this kind, the inhabitants built their houses of stone; and the place has since been strongly fortified. See HAVANNAH.

According to the Abbé Raynal, the Spanish settlement at Cuba is very important, on three accounts: 1. The produce of the country, which is considerable. 2. As being the staple of a great trade; and, 3. As being the key to the West Indies. The principal produce of this island is cotton. The commodity, however, through neglect, is now become so scarce, that sometimes several years pass without any of it being brought into Europe. In place of cotton, coffee has been cultivated: but, by a similar negligence, that is produced in no great quantity; the whole produce not exceeding 30 or 35 thousand weight, one-third of which is exported to Vera Cruz, and the rest to Madrid. The cultivation of coffee naturally leads to that of sugar; and this, which is the most valuable production of America, would of itself be sufficient to give Cuba that state of prosperity for which it seems designed by nature. Although the surface of the island is in general uneven and mountainous, yet it has plains sufficiently extensive, and well enough watered, to supply the consumption of the greatest part of Europe with sugar. The incredible fertility of its new lands, if properly managed, would enable it to surpass every other nation, however they may have now got the start of it: yet such is the indolence of the Spaniards, that to this day they have but few plantations, where, with the finest canes, they make but a small quantity of coarse sugar at a great expence. This serves partly for the Mexican market, and partly for the mother-country; while the indolent inhabitants are content to import sugar for themselves at the expence of near 220,000l. annually. It has been expected with probability, that the tobacco imported from Cuba would compensate this loss; for after furnishing Mexico and Peru, there was sufficient, with the little brought from Caracca and Buenos Ayres, to supply all Spain. But this trade too has declined through the negligence of the court of Madrid, in not gratifying the general taste for tobacco from the Havannah. The Spanish colonies have an universal trade in skins; and Cuba supplies annually about 10 or 12 thousand. The number might easily be increased in a country abounding with wild cattle where some gentlemen possess large tracts of ground, that for want of population can scarce be applied to any other purpose than that of breeding cattle. The hundredth part of this island is not yet cleared. The true plantations are all confined to the beautiful plains of the Havannah, and even those are not what they might be. All these plantations

together may employ about 25,000 male and female slaves. The number of whites, mestees, mulattoes, and free negroes, upon the whole island, amounts to about 30,000. The food of these different species consists of excellent pork, very bad beef, and cassava bread. The colony would be more flourishing, if its productions had not been made the property of a company, whose exclusive privilege operates as a constant and invariable principle of discouragement. If any thing could supply the want of an open trade, and atone for the grievances occasioned by this monopoly at Cuba, it would be the advantage which this island has for such a long time enjoyed, in being the rendezvous of almost all the Spanish vessels that sail to the new world. This practice commenced almost with the colony itself. Ponce de Leon, having made an attempt upon Florida in 1512, became acquainted with the new canal of Bahama. It was immediately discovered that this was the best route the ships bound from Mexico to Europe could possibly take; and to this the wealth of the island is principally, if not altogether, owing.

CUBE, in *Geometry*, a solid body consisting of six equal sides. See GEOMETRY.

CUBE-Root of any number or Quantity, is such a number or quantity, which, if multiplied into itself, and then again the product thence arising by that number or quantity, being the cube-root, this last product shall be equal to the number or quantity whereof it is the cube-root; as 2 is the cube-root of 8; because two times 2 is 4, and two times 4 is 8; and $a+b$ is the cube-root of $a^3+3aab+3abb+b^3$. See ALGEBRA.

CUBEBS, in the *Materia Medica*, a small dried fruit resembling a grain of pepper, but often somewhat longer, brought into Europe from the island of Java. In aromatic warmth and pungency, they are far inferior to pepper.

CUBIC EQUATION. See ALGEBRA.

CUBIDIA, a genus of spars. The word is derived from *κύβος*, "a die;" and is given them from their being of the shape of a common die, or of a cubic figure. These bodies owe this shape to an admixture of lead, and there are only two known species of the genus. 1. A colourless crystalline one, with thin flakes, found in the lead-mines of Yorkshire, and some other parts of the kingdom; and, 2. A milky white one with thicker crusts. This is found in the lead-mines of Derbyshire and Yorkshire, but is usually small, and is not found plentifully.

CUBIT, in the mensuration of the ancients, a long measure, equal to the length of a man's arm, from the elbow to the tip of the fingers.

Dr Arbuthnot makes the English cubit equal to 18 inches; the Roman cubit equal to 1 foot 5.406 inches; and the cubit of the Scripture equal to 1 foot 9.888 inches.

CUBITÆUS MUSCLES, the name of two muscles of the hand. See ANATOMY, *Table of the Muscles*.

CUBITUS, in *Anatomy*, a bone of the arm, reaching from the elbow to the wrist; otherwise called *ulna*, or the *greater fossile*. Some use the word for all that part of the arm between the elbow and the wrist; including the *ulna* or *cubitus*, properly so called, and the *radius*.

CUBOIDES, or Os CUBIFORME, in *Anatomy*, the seventh

Cucking-
stool
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Cucumis.

seventh bone of the foot; so called from its being in form of a cube or die.

CUCKING-STOOL, an engine invented for punishing scolds and unquiet women, by ducking them in water; called in ancient times a *tumbrel*, and sometimes a *trebuchet*. In Domesday, it is called *catbedra stercoris*; and it was in use even in the Saxon times, by whom it was described to be *catbedra in qua rixosæ mulieres sedentes aquis demergebantur*. It was anciently also a punishment inflicted upon brewers and bakers transgressing the laws; who were thereupon in such a stool immersed over head and ears in *stercore*, some stinking water. Some think it a corruption from *ducking-stool*; others from *choaking-stool*, *quia hoc modo demersæ aquis fere suffocantur*. See **CASTIGATORY**.

CUCKOW. See **CUCULUS**, **ORNITHOLOGY Index**.

Cuckow-Spit, the same with froth-spit. See **FROTH-Spit**, and **CICADA**.

CUCUBALUS, **BERRY-BEARING CHICK-WEED**: A genus of plants belonging to the decandria class; and in the natural method ranking under the 22d order, *Caryophyllei*.

CUCULUS, the **CUCKOW**, a genus of birds belonging to the order of picæ. See **ORNITHOLOGY Index**.

CUCUMBER. See **CUCUMIS**, **BOTANY Index**.

CUCUMIS, the **CUCUMBER**: a genus of plants belonging to the monœcia class; and in the natural method ranking under the 34th order, *Cucurbitaceæ*. See **BOTANY Index**.

Four varieties of the *cucumis fativus* are chiefly cultivated in this country. They are raised at three different seasons of the year: 1. on hot-beds, for early fruit; 2. under bell or hand glasses, for the middle crop; 3. on the common ground, which is for a late crop, or to pickle. The cucumbers which are ripe before April are unwholesome; being raised wholly by the heat of the dung without the assistance of the sun. Those raised in April are good, and are raised in the following manner.

Towards the latter end of January, a quantity of fresh horse-dung must be procured with the litter among it; and a small proportion of sea-coal ashes should be added to it. In four or five days the dung will begin to heat; at which time a little of it may be drawn flat on the outside, and covered with two inches thickness of good earth: this must be covered with a bell-glass; and after two days, when the earth is warm, the seeds must be sown on it, covered with a quarter of an inch of fresh earth, and the glass then set on again. The glass must be covered with a mat at night, and in four days the young plants will appear. When these are seen, the rest of the dung must be made up into a bed for one or more lights. This must be three feet thick, beat close together, and covered three inches deep with fine fresh earth; the frame must then be put on, and covered at night, or in bad weather, with mats. When the earth is hot enough, the young plants from under the bell must be removed into it, and set two inches distance. The glasses must be now and then a little raised, to give air to the plants, and turned often, to prevent the wet from the steam of the dung from dropping down upon them. The plants must be watered at proper times; and the water used for this purpose must be

set on the dung till it becomes as warm as the air in the frame: and as the young plants increase in bulk, they must be earthed up, which will give them great additional strength. If the bed is not hot enough, some fresh litter should be laid round its sides: and if too hot, some holes should be bored into several parts of it with a stake, which will let out the heat; and when the bed is thus brought to a proper coolness, the holes are to be stopped up again with fresh dung. When these plants begin to shoot their third or rough leaf, another bed must be prepared for them like the first; and when it is properly warm through the earth, the plants of the other bed must be taken up, and planted in this, in which there must be a hole in the middle of each light, about a foot deep, and nine inches over, filled with light and fine fresh earth laid hollow in form of a basin: in each of these holes there must be set four plants: these must be, for two or three days, shaded from the sun, that they may take firm root; after which they must have all the sun they can, and now and then a little fresh air, as the weather will permit. When the plants are four or five inches high, they must be gently pegged down towards the earth, in directions as different from one another as may be; and the branches afterwards produced should be treated in the same manner. In a month after this the flowers will appear, and soon after the rudiments of the fruit. The glasses should now be carefully covered at night; and in the daytime the whole plants should be gently sprinkled with water. These will produce fruit till about midsummer; at which time the second crop will come in to supply their place: these are to be raised in the same manner as the early crop, only they do not require so much care and trouble. This second crop should be sown in the end of March or beginning of April. The season for sowing the cucumbers of the last crop, and for pickling, is towards the latter end of May, when the weather is settled: these are sown in holes dug to a little depth, and filled up with fine earth, so as to be left in the form of a basin; eight or nine seeds being put into one hole. These will come up in five or six days; and till they are a week old, are in great danger from the sparrows. After this they require only to be kept clear of weeds, and watered now and then. There should be only five plants left at first in each hole; and when they are grown a little farther up, the worst of these is to be pulled up, that there may finally remain only four. The plants of this crop will begin to produce fruit in July.

CUCURBIT, the name of a chemical vessel employed in distillation, when covered with its head. Its name comes from its elongated form in shape of a gourd: some cucurbits, however, are shallow and wide-mouthed. They are made of copper, tin, glass, and stone ware, according to the nature of the substances to be distilled. A cucurbit, provided with its capital, constitutes the vessel for distillation called an *alembic*.

CUCURBITA, the **GOURD**, and **POMPION**: A genus of plants belonging to the monœcia class; and in the natural method ranking under the 34th order, *Cucurbitaceæ*. See **BOTANY Index**.

All the species of gourds and pompions, with their respective varieties, are raised from seed sown annually

Cucumis
||
Cucurbita.

Cucurbita in April or the beginning of May, either with or without the help of artificial heat. But the plants forwarded in a hot-bed till about a month old, produce fruit a month or six weeks earlier on that account, and ripen proportionably sooner. The first species particularly will scarce ever produce tolerably sized fruit in this country, without the treatment above mentioned.

In this country these plants are cultivated only for curiosity; but in the places where they are natives, they answer many important purposes. In both the Indies, bottle-gourds are very commonly cultivated and sold in the markets. They make the principal food of the common people, particularly in the warm months of June, July, and August. The Arabians call this kind of gourd *charrab*. It grows commonly on the mountains in these deserts. The natives boil and season it with vinegar; and sometimes, filling the shell with rice and meat, make a kind of pudding of it. The hard shell is used for holding water, and some of them are capacious enough to contain 22 gallons; these, however, are very uncommon. The fruit of the pompion likewise constitutes a great part of the food of the common people during the hot months, in those places where they grow. If gathered when not much bigger than a hen or goose egg, and properly seasoned with butter, vinegar, &c. they make a tolerable good sauce for butchers meat, and are also used in soups. In England they are seldom used till grown to maturity. A hole is then made in one side, through which the pulp is scooped out; after being divested of the seeds, it is mixed with sliced apples, milk, sugar, and grated nutmeg, and thus a kind of pudding is made. The whole is then baked in the oven, and goes by the name of a *pumpkin pye*. For this purpose the plants are cultivated in many places of England by the country people, who raise them upon old dung-hills. The third species is also used in North America for culinary purposes. The fruit is gathered when about half grown, boiled and eaten as sauce to butchers meat. The squashes are also treated in the same manner, and by some people esteemed delicate eating.

CUCURBITACEÆ, the name of the 34th order in Linnæus's fragments of a natural method, consisting of plants which resemble the gourd in external figure, habit, virtues, and sensible qualities. This order contains the following genera, viz. *gronovia*, *melothria*, *passiflora*, *anguria*, *bryonia*, *cucumis*, *cucurbita*, *sevillea*, *momordica*, *ficyos*, *trichosanthes*.

CUCURUCU, in *Zoology*, the name of a serpent found in America, growing 10 or 12 feet long. It is also very thick in proportion to its length, and is of a yellowish colour, strongly variegated with black spots, which are irregularly mixed among the yellow, and often have spots of yellow within them. It is a very poisonous species, and greatly dreaded by the natives; but its flesh is a very rich food, and much esteemed among them, when properly prepared.

CUD, sometimes means the inside of the throat in beasts; but generally the food that they keep there, and chew over again. See *ANATOMY Index*.

CUDDALORE, a town on the coast of Coromandel in India, belonging to the English, very near the place where Fort St David once stood. N. Lat. 11.

30. E. Long. 79. 53. 30. This place was reduced by Cuddalore. the French in the year 1781; and in 1783 underwent a severe siege by the British forces commanded by General Stuart. At this time it was become the principal place of arms held by the enemy on that coast: they had exerted themselves to the utmost in fortifying it; and it was garrisoned by a numerous body of the best forces of France, well provided with artillery, and every thing necessary for making a vigorous defence.

Previous to the commencement of the siege, they had constructed strong lines of defence all along the fort, excepting one place where the town was covered by a wood, supposed to be inaccessible. Through this wood, however, General Stuart began to cut his way; on which the besieged began to draw a line of fortification within that also. The British commander then determined to attack these fortifications before they were quite completed; and for this purpose a vigorous attack was made by the troops under General Bruce. The grenadiers assailed a redoubt which greatly annoyed them, but were obliged to retire; on which the whole army advanced to the attack of the lines. The French defended themselves with resolution; and as both parties charged each other with fixed bayonets, a dreadful slaughter ensued. At last the British were obliged to retreat; but the French having imprudently come out of their lines to pursue them, were in their turn defeated, and obliged to give up the lines they had constructed with so much pains and so gallantly defended. The loss on the part of the British amounted to near 1000 killed and wounded, one half of whom were Europeans; and that of the French was not less than 600.

Though the British proved victorious in this contest, yet the victory cost so dear that there was not now a sufficient number to carry on the siege with any effect. The troops also became sickly; and their strength diminished so much, that the besieged formed a design of not only obliging them to raise the siege, but of totally destroying them. For this purpose 4000 men were landed from the squadron commanded by M. Suffrein; and the conduct of the enterprise committed to the Chevalier de Damas, an experienced and valiant officer. On the 25th of June 1783, he sallied out at the head of the regiment of Aquitaine, supposed to be one of the best in the French service, and of which he was colonel; with other troops selected from the bravest of the garrison. The attack was made by day-break; but though the British were at first put into some disorder, they quickly recovered themselves, and not only repulsed the enemy, but pursued them so warmly, that the Chevalier de Damas himself was killed with about 200 of his countrymen, and as many taken prisoners.

This engagement was attended with one of the most remarkable circumstances that happened during the whole war, viz. A corps of Sepoy grenadiers encountering the French troops opposed to them with fixed bayonets, and overcoming them. This extraordinary bravery was not only noticed with due applause, but procured for that corps a provision for themselves and families from the presidencies to which they belonged. No other operation of any consequence took place

Cuddy ||
Cudworth. } place during the siege, which was now soon ended by the news of peace having taken place between the bel-
ligerent powers of Europe.

CUDDY, in a first rate man of war, is a place lying between the captain-lieutenant's cabin and the quarter-deck; and divided into partitions for the master and other officers. It denotes also a kind of cabin near the stern of a lighter or barge of burden.

CUDWEED. See GNAPHALIUM, BOTANY Index.

CUDWORTH, RALPH, a very learned divine of the church of England in the 17th century. In January 1657, he was one of the persons nominated by a committee of the parliament to be consulted about the English translation of the bible. In 1678 he published his *True Intellectual System of the Universe*; a work which met with great opposition. He likewise published a treatise, entitled, *Deus justificatus*: or, "The divine goodness of God vindicated, against the assertions of absolute and unconditionate reprobation." He embraced the mechanical or corpuscular philosophy: but with regard to the Deity, spirits, genii, and ideas, he followed the Platonists. He died at Cambridge in 1688. The editor of the new edition of the *Biographia Britannica* observes, that it is not easy to meet with a greater store-house of ancient literature than the "Intellectual System;" and various writers, we believe, have been indebted to it for an appearance of learning which they might not otherwise have been able to maintain. That Dr Cudworth was fanciful in some of his opinions, and that he was too devoted a follower of Plato and the Platonists, will scarcely be denied even by those who are most sensible of his general merit. The reflections that have been cast upon such a man as the author, by bigotted writers, are altogether contemptible. It is the lot of distinguished merit to be thus treated. Lord Shaftesbury, speaking on this subject, has given an honourable testimony to the memory of Dr Cudworth. "You know (says his lordship) the common fate of those who dare to appear fair authors. What was that pious and learned man's case, who wrote the *Intellectual System of the Universe*? I confess it was pleasant enough to consider, that though the whole world were no less satisfied with his capacity and learning, than with his sincerity in the cause of Deity; yet he was accused of giving the upper hand to the atheists, for having only stated their reasons, and those of their adversaries, fairly together."

It is observed by Dr Birch, that Dr Cudworth's *Intellectual System of the Universe* has raised him a reputation, to which nothing can add but the publication of his other writings still extant in manuscript. That these writings are very valuable cannot be doubted. We may be assured that they display a great compass of sentiment and a great extent of learning. Nevertheless, from their voluminous quantity, from the abstruseness of the subjects they treat upon, and from the revolutions of literary taste and opinion, it is morally certain that the publication of them would not be successful in the present age. Mr Cudworth's daughter Damaris, who married Sir Francis Masham of Oates in Essex, was a lady of genius and learning: she had a great friendship for Mr Locke, who resided

several years at her house at Oates, where he died in 1704.

CUE, an *item* or *inuendo*, given to the actors on the stage what or when to speak. See PROMPTER.

CUENZA, a town of Spain, in New Castile, and in the territory of the Sierra, with a bishop's see. It was taken by Lord Peterborough in 1706, but retaken by the duke of Berwick. It is seated on the river Xucar, in W. Long. 1. 45. N. Lat. 40. 10.

CUERENHERT, THEODORE VAN, a very extraordinary person, was a native of Amsterdam, where he was born in 1552. It appears, that early in life he travelled into Spain and Portugal; but the motives of his journey are not ascertained. He was a man of science, and according to report, a good poet. The sister arts at first he considered as an amusement only; but in the end he was, it seems, obliged to have recourse to engraving alone for his support. And though the different studies in which he employed his time prevented his attachment to this profession being so close as it ought to have been, yet at least the marks of genius are discoverable in his works. They are slight, and hastily executed with the graver alone; but in an open careless style, so as greatly to resemble designs made with a pen. He was established at Haerlem; and there pursuing his favourite studies in literature, he learned Latin, and was made secretary to that town, from whence he was sent several times as ambassador to the prince of Orange, to whom he addressed a famous manifesto, which that prince published in 1566. Had he stopped here, it had been well; but directing his thoughts into a different channel, he undertook an argument as dangerous as it was absurd. He maintained that, all religious communions were corrupted; and that, without a supernatural mission, accompanied with miracles, no person had a right to administer in any religious office: he therefore pronounced that man to be unworthy the name of a Christian who would enter any place of public worship. This he not only advanced in words, but strove to show the sincerity of his belief by practice; and for that reason would not communicate with either Protestant or Papist. His works were published in three volumes folio in 1630; and though he was several times imprisoned, and at last sentenced to banishment, yet he does not appear to have altered his sentiments. He died at Dergoude in 1590, aged 68 years. It is no small addition to the honour of this singular man, that he was the instructor of that justly celebrated artist Henry Goltzius. Cuerehert worked jointly with the Galles and other artists, from the designs of Martin Hemskerck. The subjects are from the Old and New Testament, and consist chiefly of middling sized plates lengthwise. He also engraved several subjects from Franc. Floris.

CUERPO. To *walk in cuerpo*, is a Spanish phrase for going without a cloak; or without all the formalities of a full dress.

CUFF, HENRY, the unfortunate secretary of the unfortunate earl of Essex, was born at Hinton St George in Somersetshire, about the year 1560, of a genteel family, who were possessed of considerable estates in that county. In 1576, he was entered of Trinity college Oxford, where he soon acquired considerable

Cujas
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Cuirafs.

siderable reputation as a Grecian and disputant. He obtained a fellowship in the above-mentioned college; but was afterwards expelled for speaking disrespectfully of the founder (A). He was, however, soon after admitted of Merton college; of which, in 1586, he was elected probationer, and in 1588 fellow. In this year he took the degree of master of arts. Some time after he was elected Greek professor, and in 1594 proctor of the university. When he left Oxford is uncertain; nor are we better informed as to the means of his introduction to the earl of Essex. When that nobleman was made lord lieutenant of Ireland, Mr Cuff was appointed his secretary, and continued intimately connected with his lordship until his confinement in the tower; and he is generally supposed to have advised those violent measures which ended in their mutual destruction. The earl indeed confessed as much before his execution, and charged him to his face with being the author of all his misfortunes. Mr Cuff was tried for high-treason, convicted, and executed at Tyburn on the 30th of March 1601. Lord Bacon, Sir Henry Wotton, and Camden, speak of him in very harsh terms. He was certainly a man of learning and abilities. He wrote two books; the one entitled, *The Differences of the Ages of Man's Life*; the other, *De Rebus Gestis in Sancto Concilio Nicæno*. The first was published after his death; the second is still in manuscript.

CUJAS, JAMES, in Latin *Cujacius*, the best civilian of his time, was born at Toulouse, of obscure parents, in 1520. He learned polite literature and history; and acquired great knowledge in the ancient laws, which he taught with extraordinary reputation at Toulouse, Cahors, Bourges, and Valence in Dauphiné. Emmanuel Philibert, duke of Savoy, invited him to Turin, and gave him singular marks of his esteem. Cujas afterwards refused very advantageous offers from Pope Gregory XIII. who was desirous of having him teach at Bologna: but he chose rather to fix at Bourges, where he had a prodigious number of scholars; whom he not only took great pleasure in instructing, but assisted with his substance, which occasioned his being called the *Father of his Scholars*. He died at Bourges in 1590, aged 70. His works are in high esteem among civilians.

CUJAVIA, a territory of Great Poland, having on the north the duchy of Prussia, on the west the palatinate of Kalisk, and on the south those of Licici and Rava, and on the west that of Ploczko. It contains two palatinates, the chief towns of which are Inowloez and Brest; as also Uladislaw, the capital of the district.

CUIRASS, a piece of defensive armour, made of iron plate, well hammered, serving to cover the body, from the neck to the girdle, both before and behind. Some derive the word, by corruption, from

the Italian *cuore*, "heart;" because it covers that part; others from the French *cuir*, or the Latin *corium*, "leather;" whence *coriaceus*: because defensive arms were originally made of leather. The cuirafs was not brought into use till about the year 1300, though they were known both to the ancient Greeks and Romans in different forms.

CUIRASSIERS, cavalry armed with cuirasses, as most of the Germans are: The French have a regiment of cuirassiers; but we have had none in the British army since the revolution.

CULDEE, in church-history, a sort of monkish priests formerly inhabiting Scotland and Ireland. Being remarkable for the religious exercises of preaching and praying, they were called, by way of eminence, *cultores Dei*; from whence is derived the word *culdees*. They made choice of one of their own fraternity to be their spiritual head, who was afterwards called the *Scots bishop*.

CULEMBACH, a district or marquisate of the circle of Franconia, in Germany. It is bounded on the west by the bishopric of Bamberg; on the south by the territory of Nuremberg; on the east by the palatinate of Bavaria and Bohemia; and on the north by Voegtland and part of the circle of Upper Saxony. It is about 50 miles in length from north to south, and 30 in breadth from east to west. It is full of forests and high mountains; the most considerable of the latter are those of Frichtelberg, all of them covered with pine-trees. Here are the sources of four large rivers, the Maine, the Sala, the Eger, and the Nab. This marquisate is the upper part of the burgraviate of Nuremberg.

CULEMBACH, a town of Germany, in Franconia, the capital of the marquisate of the same name. It has good fortifications, and is seated at the confluence of two branches of the river Maine. It was pillaged and burnt by the Hussites in 1430, and by the inhabitants of Nuremberg in 1573. E. Long. 11. 28. N. Lat. 50. 12.

CULEUS, in Roman antiquity, the largest measure of capacity for things liquid, containing 20 amphoræ, or 40 urnæ. It contained 143 gallons 3 pints, English wine-measure, and was 11,095 solid inches.

CULEX, the GNAT; a genus of insects belonging to the order of diptera. See ENTOMOLOGY *Index*.

CULIACAN, a province of North America, in the audience of Guadalajara. It is bounded on the north by New Mexico, on the east by New Biscay and the Zacatecas, on the south by Chiamatlan, and on the west by the sea. It is a fruitful country, and has rich mines.

CULLIAGE, a barbarous and immoral practice, whereby the lords of manors anciently assumed a right to the first night of their vassals' brides.

CULLEN,

(A) The founder of Trinity College was Sir Thomas Pope, who, it seems, would often take a piece of plate from a friend's house, and carry it home concealed under his gown, out of fun, no doubt. Cuff, being merry with some of his acquaintance at another college, happened to say, alluding to Sir Thomas Pope's usual joke above-mentioned, "A pox on this beggarly house! why, our founder stole as much plate as would build such another." This piece of wit was the cause of his expulsion. The heads of colleges in those days did not understand humour. Anthony Wood was told this story by Dr Bathurst.

Cullen.

CULLEN, a borough town in the county of Banff in Scotland. It is situated on the sea-coast. W. Long. 2. 12. N. Lat. 57. 38. The manufacture of linen and damask has been established in this town for more than 50 years.

CULLEN, *Dr William*, an eminent physician and distinguished medical teacher, was born in Lanarkshire, in the west of Scotland, 11th December 1712. His father was for some time chief magistrate of the town of Hamilton; but though a very respectable man, his circumstances were not such as to permit him to lay out much money on the education of his son. William therefore, after serving an apprenticeship to a surgeon apothecary in Glasgow, went several voyages to the West Indies as a surgeon in a trading vessel from London: but of this employment he tired, and settled himself, at an early period of life, as a country surgeon in the parish of Shotts, where he staid a short time practising among the farmers and country people, and then went to Hamilton with a view to practise as a physician, having never been fond of operating as a surgeon.

While he resided near Shotts, it chanced that Archibald duke of Argyle, who at that time bore the chief political sway in Scotland, made a visit to a gentleman of rank in that neighbourhood. The duke was fond of literary pursuits, and was then particularly engaged in some chemical researches, which required to be elucidated by experiment. Eager in these pursuits, his grace, while on this visit, found himself much at a loss for the want of some small chemical apparatus, which his landlord could not furnish: but happily recollecting young Cullen in the neighbourhood, he mentioned him to the duke as a person who could probably furnish it.—He was accordingly invited to dine; was introduced to his grace,—who was so much pleased with his knowledge, his politeness and address, that he formed an acquaintance which laid the foundation of all Doctor Cullen's future advancement.

The name of Cullen by this time became familiar at every table in that neighbourhood; and thus he came to be known, by character, to the duke of Hamilton, who then resided, for a short time, in that part of the country: and that nobleman having been suddenly taken ill, the assistance of young Cullen was called in; which proved a fortunate circumstance in serving to promote his advancement to a station in life more suited to his talents than that in which he had hitherto moved.

The duke was highly delighted with the sprightly character and ingenious conversation of his new acquaintance. Receiving instruction from him in a much more pleasing, and an infinitely easier way than he had ever before obtained, the conversation of Cullen proved highly interesting to his grace.—No wonder then that he soon found means to get his favourite doctor, who was already the esteemed acquaintance of the man through whose hands all preferments in Scotland were obliged to pass, appointed to a place in the university of Glasgow, where his singular talents for discharging the duties of the station he now occupied soon became very conspicuous.

During his residence in the country, however, several important incidents occurred, that ought not to be passed over in silence. It was during this time that was formed a connection in business in a very humble

Cullen.

line between two men, who became afterwards eminently conspicuous in much more exalted stations. William, afterwards Doctor Hunter, the famous lecturer on anatomy in London, was a native of the same part of the country; and not being in affluent circumstances more than Cullen, these two young men, stimulated by the impulse of genius to prosecute their medical studies with ardour, but thwarted by the narrowness of their fortune, entered into a copartnership business as surgeons and apothecaries in the country. The chief end of their contract being to furnish the parties with the means of prosecuting their medical studies, which they could not separately so well enjoy, it was stipulated, that one of them alternately should be allowed to study in what college he inclined, during the winter, while the other should carry on the business in the country for their common advantage. In consequence of this agreement, Cullen was first allowed to study in the university of Edinburgh for one winter; but when it came to Hunter's turn next winter, he, preferring London to Edinburgh, went thither. There his singular neatness in dissecting, and uncommon dexterity in making anatomical preparations, his assiduity in study, his mildness of manner, and pliability of temper, soon recommended him to the notice of Dr Douglas, who then read lectures upon anatomy and midwifery there; who engaged Hunter as an assistant, and whose chair he afterwards filled with so much honour to himself and satisfaction to the public.

Thus was dissolved, in a premature manner, a copartnership perhaps of as singular a kind as is to be found in the annals of literature: nor was Cullen a man of that disposition to let any engagement with him prove a bar to his partner's advancement in life. The articles were freely departed from by him; and Cullen and Hunter ever after kept up a very cordial and friendly correspondence; though, it is believed, they never from that time had a personal interview.

During the time that Cullen practised as a country surgeon and apothecary, he formed another connection of a more permanent kind, which happily for him, was not dissolved till a very late period of his life. With the ardour of disposition he possessed, it cannot be supposed he beheld the fair sex with indifference. Very early in life he took a strong attachment to an amiable woman, a Miss Johnston, daughter to a clergyman in that neighbourhood, nearly of his own age, who was prevailed on to join with him in the sacred bonds of wedlock, at a time when he had nothing else to recommend him to her except his person and dispositions. After giving to him a numerous family, and participating with him the changes of fortune which he experienced, she died in summer 1786.

In the year 1746, Cullen who had now taken the degree of doctor in physic, was appointed a lecturer in chemistry in the university of Glasgow: and in the month of October began his lectures in that science. His singular talents for arrangement, his distinctness of enunciation, his vivacity of manner, and his knowledge of the science he taught, rendered his lectures interesting to the students to a degree that had been till then unknown at that university. He became, therefore, in some measure, adored by the students. The former professors were eclipsed by the brilliancy of his reputation; and he had to experience all those little rubs that envy

Cullen.

and disappointed ambition naturally threw in his way. Regardless, however, of these secret shagreens, he pressed forward with ardour in his literary career; and, supported by the favour of the public, he consoled himself for the contumely he met with from a few individuals. His practice as a physician increased from day to day; and a vacancy having occurred in the year 1751, he was then appointed by the king professor of medicine in that university. This new appointment served only to call forth his powers, and to bring to light talents that it was not formerly known he possessed; so that his fame continued to increase.

As, at that period, the patrons of the university of Edinburgh were constantly on the watch for the most eminent medical men to support the rising fame of the college, their attention was soon directed towards Cullen; who, on the death of Dr Plummer, professor of chemistry, was, in 1756, unanimously invited to accept the vacant chair. This invitation he accepted: and having resigned all his employments in Glasgow, he began his academical career in Edinburgh in the month of October of that year; and there he resided till his death.

If the admission of Cullen into the university of Glasgow gave great spirit to the exertions of the students, this was still, if possible, more strongly felt in Edinburgh. Chemistry, which had been till that time of small account in that university, and was attended to by very few of the students, instantly became a favourite study; and the lectures upon that science were more frequented than any others in the university, anatomy alone excepted. The students, in general, spoke of Cullen with the rapturous ardour that is natural to youth when they are highly pleased. These eulogiums appeared extravagant to moderate men, and could not fail to prove disgusting to his colleagues. A party was formed among the students for opposing this new favourite of the public; and these students, by misrepresenting the doctrines of Cullen to others who could not have an opportunity of hearing these doctrines themselves, made even some of the most intelligent men in the university think it their duty publicly to oppose these imaginary tenets. The ferment was thus augmented; and it was some time before the professors discovered the arts by which they had been imposed upon, and universal harmony restored.

During this time of public ferment, Cullen went steadily forward, without taking any part himself in these disputes. He never gave ear to any tales respecting his colleagues, nor took any notice of the doctrines they taught: That some of their unguarded strictures might at times come to his knowledge, is not impossible; but if they did, they seemed to make no impression on his mind.

These attempts of a party of students to lower the character of Cullen on his first outlet in the university of Edinburgh having proved fruitless, his fame as a professor, and his reputation as a physician, became more and more respected every day. Nor could it well be otherwise: Cullen's professional knowledge was always great, and his manner of lecturing singularly clear and intelligible, lively and entertaining; and to his patients, his conduct in general as a physician was so pleasing, his address so affable and engaging, and his manner so open, so kind, and so little regulated by pecuniary

Cullen.

considerations, that it was impossible for those who had occasion to call once for his medical assistance, ever to be satisfied on any future occasion without it. He became the friend and companion of every family he visited; and his future acquaintance could not be dispensed with.

But if Dr Cullen in his public capacity deserved to be admired, in his private capacity by his students he deserved to be adored. His conduct to them was so attentive, and the interest he took in the private concerns of all those students who applied to him for advice, was so cordial and so warm, that it was impossible for any one who had a heart susceptible of generous emotions, not to be enraptured with a conduct so uncommon and so kind. Among ingenious youth, gratitude easily degenerates into rapture—into respect nearly allied to adoration. Those who advert to this natural construction of the human mind, will be at no loss to account for that popularity that Cullen enjoyed—a popularity, that those who attempt to weigh every occurrence by the cool standard of reason alone, will be inclined to think excessive. It is fortunate, however, that the bulk of mankind will ever be influenced in their judgment not less by feelings and affections than by the cold and phlegmatic dictates of reason. The adoration which generous conduct excites, is the reward which nature hath appropriated exclusively to disinterested beneficence. This was the secret charm that Cullen ever carried about with him, which fascinated such numbers of those who had intimate access to him. This was the power which his envious opponents never could have an opportunity of feeling.

The general conduct of Cullen to his students was this. With all such as he observed to be attentive and diligent, he formed an early acquaintance, by inviting them by twos, by threes, or by fours at a time, to sup with him, conversing with them on these occasions with the most engaging ease, and freely entering with them on the subject of their studies, their amusements, their difficulties, their hopes, and future prospects. In this way, he usually invited the whole of his numerous class, till he made himself acquainted with their abilities, their private character, and their objects of pursuit. Those among them whom he found most assiduous, best disposed, or the most friendless, he invited the most frequently, till an intimacy was gradually formed, which proved highly beneficial to them. Their doubts, with regard to their objects of study, he listened to with attention, and solved with the most obliging condescension. His library, which consisted of an excellent assortment of the best books, especially on medical subjects, was at all times open for their accommodation; and his advice, in every case of difficulty to them, they always had it in their power most readily to obtain. They seemed to be his family; and few persons of distinguished merit have left the university of Edinburgh in his time, with whom he did not keep up a correspondence till they were fairly established in business. By these means, he came to have a most accurate knowledge of the state of every country, with respect to practitioners in the medical line; the only use he made of which knowledge, was to direct students in their choice of places, where they might have an opportunity of engaging in business with a reasonable prospect of success.

Cullen. success. Many, very many, able men has he thus put into a good line of business, where they never could have thought of it themselves; and they are now reaping the fruits of this beneficent foresight on his part.

Nor was it in this way only that he befriended the students at the university of Edinburgh. Possessing a benevolence of mind that made him ever think first of the wants of others, and recollecting the difficulties that he himself had had to struggle with in his younger days, he was at all times singularly attentive to their pecuniary concerns. From his general acquaintance among the students, and the friendly habits he was on with many of them, he found no difficulty in discovering those among them who were rather in embarrassed circumstances, without being obliged to hurt their delicacy in any degree. To such persons, when their habits of study admitted of it, he was peculiarly attentive. They were more frequently invited to his house than others; they were treated with more than usual kindness and familiarity; they were conducted to his library, and encouraged by the most delicate address to borrow from it freely whatever books he thought they had occasion for: and as persons in these circumstances were usually more shy in this respect than others, books were sometimes pressed upon them as a sort of constraint, by the doctor insisting to have their opinion of such or such passages they had not read, and desiring them to carry the book home for that purpose. He in short, behaved to them rather as if he courted their company, and stood in need of their acquaintance than they of his. He thus raised them in the opinion of their acquaintance to a much higher degree of estimation than they could otherwise have obtained; which, to people whose minds were depressed by penury, and whose sense of honour was sharpened by the consciousness of an inferiority of a certain kind, was singularly engaging. Thus they were inspired with a secret sense of dignity, which elevated their minds, and excited an uncommon ardour of pursuit, instead of that melancholy inactivity which is so natural in such circumstances, and which too often leads to despair. Nor was he less delicate in the manner of supplying their wants, than attentive to discover them. He often found out some polite excuse for refusing to take payment for a first course, and never was at a loss for one to an after course. Before they could have an opportunity of applying for a ticket, he would sometimes lead the conversation to some subject that occurred in the course of his lectures; and as his lectures were never put in writing by himself, he would sometimes beg the favour to see their notes, if he knew they had been taken with attention, under a pretext of assisting his memory. Sometimes he would express a wish to have their opinion of a particular part of his course, and presented them with a ticket for that purpose; and sometimes he refused to take payment, under the pretext that they had not received his full course the preceding year, some part of it having been necessarily omitted for want of time, which he meant to include in this course. By such delicate address, in which he greatly excelled, he took care to fore-run their wants. Thus he not only gave them the benefit of his own lectures, but by refusing to take their money, he also enabled them to attend those of others that were necessary to complete their course of

studies. These were particular devices he adopted to individuals to whom economy was necessary; but it was a general rule with him, never to take money from any student for more than two courses of the same set of lectures, permitting him to attend these lectures as many years longer as he pleased *gratis*.

He introduced another general rule into the university, that was dictated by the same principle of disinterested beneficence, that ought not to be here passed over in silence. Before he came to Edinburgh, it was the custom of medical professors to accept of fees for their medical assistance, when wanted, even from medical students themselves, who were perhaps attending the professor's own lectures at the time. But Cullen never would take fees as a physician from any student at the university, though he attended them, when called in as a physician, with the same assiduity and care as if they had been persons of the first rank, who paid him most liberally. This gradually induced others to adopt a similar practice; so that it is now become a general rule for medical professors to decline taking any fees when their assistance is necessary to a student. For this useful reform, with many others, the students of the university of Edinburgh are solely indebted to the liberality of Dr Cullen.

The first lectures which Cullen delivered in Edinburgh were on chemistry; and for many years he also gave clinical lectures on the cases which occurred in the royal infirmary. In the month of February 1763, Dr Alston died, after having begun his usual course of lectures on the materia medica; and the magistrates of Edinburgh, as patrons of that professorship in the university, appointed Dr Cullen to that chair, requesting that he would finish the course of lectures that had been begun for that season. This he agreed to do; and though he was under a necessity of going on with the course in a few days after he was nominated, he did not once think of reading the lectures of his predecessor, but resolved to deliver a new course entirely his own. The popularity of Cullen at this time may be guessed at by the increase of new students who came to attend his course in addition to the eight or ten who had entered to Dr Alston. The new students exceeded 100. An imperfect copy of these lectures thus fabricated in haste, having been published, the doctor thought it necessary to give a more correct edition of them in the latter part of his life. But his faculties being then much impaired, his friends looked in vain for those striking beauties that characterised his literary exertions in the prime of life.

Some years afterwards, on the death of Dr White, the magistrates once more appointed Dr Cullen to give lectures on the theory of physic in his stead. And it was on that occasion Dr Cullen thought it expedient to resign the chemical chair in favour of Dr Black, his former pupil, whose talents in that department of science were then well known, and who filled the chair till his death with great satisfaction to the public. Soon after, on the death of Dr Rutherford, who for many years had given lectures with applause on the practice of physic, Dr John Gregory (whose name can never be mentioned by any one who had the pleasure of his acquaintance without the warmest tribute of a grateful respect) having become a candidate for this place along with Dr Cullen, a sort of compromise took place between them,

Cullen.

by which they agreed each to give lectures alternately on the theory and on the practice of physic during their joint lives, the longest survivor being allowed to hold either of the classes he should incline. In consequence of this agreement, Dr Cullen delivered the first course of lectures on the practice of physic in winter 1766, and Dr Gregory succeeded him in that branch the following year. Never perhaps did a literary arrangement take place that could have proved more beneficial to the students than this. Both these men possessed great talents, though of a kind extremely dissimilar. Both of them had certain failings or defects, which the other was aware of, and counteracted. Each of them knew and respected the talents of the other. They co-operated, therefore, in the happiest manner, to enlarge the understanding, and to forward the pursuits of their pupils. Unfortunately this arrangement was soon destroyed by the unexpected death of Dr Gregory, who was cut off in the flower of life by a sudden and unforeseen event. After this time, Cullen continued to give lectures on the practice of physic till a few months before his death, which happened on the 5th of February 1790, in the 77th year of his age.

In drawing the character of Dr Cullen, his biographer, Dr Anderson observes, that in scientific pursuits men may be arranged into two grand classes, which, though greatly different from each other in their extremes, yet approximate at times so near as to be blended indiscriminately together; those who possess a talent for detail, and those who are endowed with the faculty of arrangement. The first may be said to view objects individually as through a microscope. The field of vision is confined; but the objects included within that field, which must usually be considered singly and apart from all others, are seen with a wondrous degree of accuracy and distinctness. The other takes a sweeping view of the universe at large, considers every object he perceives, not individually, but as a part of one harmonious whole: His mind is therefore not so much employed in examining the separate parts of this individual object, as in tracing its relations, connections, and dependencies on those around it.—Such was the turn of Cullen's mind. The talent for arrangement was that which peculiarly distinguished him from the ordinary class of mortals; and this talent he possessed perhaps in a more distinguished degree than any other person of the age in which he lived. Many persons exceeded him in the minute knowledge of particular departments, who, knowing this, naturally looked upon him as their inferior; but possessing not at the same time that glorious faculty, which, "with an eye wide roaming, glances from the earth to heaven," or the charms which this talent can infuse into congenial minds, felt disgust at the pre-eminence he obtained, and astonishment at the means by which he obtained it. An Aristotle and a Bacon have had their talents in like manner appreciated; and many are the persons who can neither be exalted to sublime ideas with Homer, nor ravished with the natural touches of a Shakespeare. Such things are wisely ordered, that every department in the universe may be properly filled by those who have talents exactly suited to the task assigned them by heaven.

Had Cullen, however, possessed the talents for arrangement alone, small would have been his title to

that high degree of applause he has attained. Without a knowledge of *facts*, a talent for arrangement produces nothing but chimeras; without materials to work upon, the structures which an over-heated imagination may rear up are merely "the baseless fabric of a vision." No man was more sensible of the justness of this remark than Dr Cullen, and few were at greater pains to avoid it. His whole life, indeed, was employed, almost without interruption, in collecting facts. Whether he was reading, or walking, or conversing, these were continually falling into his way. With the keen perception of an eagle, he marked them at the first glance; and without stopping at the time to examine them, they were stored up in his memory, to be drawn forth as occasion required, to be confronted with other facts that had been obtained after the same manner, and to have their truth ascertained, or their falsity proved, by the evidence which should appear when carefully examined at the impartial bar of justice. Without a memory retentive in a singular degree, this could not have been done; but so very extraordinary was Dr Cullen's memory, that till towards the very decline of life, there was scarcely a fact that had ever occurred to him which he could not readily recollect, with all its concomitant circumstances, whenever he had occasion to refer to it. It was this faculty which so much abridged his labour in study, and enabled him so happily to avail himself of the labour of others in all his literary speculations. He often reaped more by the conversation of an hour than another man would have done in whole weeks of laborious study.

In his lectures, Dr Cullen never attempted to read. His lectures were delivered *viva voce*, without having been previously put into writing, or thrown into any particular arrangement. The vigour of his mind was such, that nothing more was necessary than a few short notes before him, merely to prevent him from varying from the general order he had been accustomed to observe. This gave to his discourses an ease, a vivacity, a variety, and a force, that are rarely to be met with in academical discourses. His lectures, by consequence, upon the same subject, were never exactly the same. Their general tenor indeed was not much varied; but the particular illustrations were always new, well suited to the circumstances that attracted the general attention of the day, and were delivered in the particular way that accorded with the cast of mind the lecturer found himself in at the time. To these circumstances must be ascribed that energetic artless elocution, which rendered his lectures so generally captivating to his hearers. Even those who could not follow him in those extensive views his penetrating mind glanced at, or who were not able to understand those apt allusions to collateral objects which he could only rapidly point at as he went along, could not help being warmed in some measure by the vivacity of his manner. But to those who could follow him in his rapid career, the ideas he suggested were so numerous, the views he laid open were so extensive, and the objects to be attained were so important—that every active faculty of the mind was roused; and such an ardour of enthusiasm was excited in the prosecution of study, as appeared to be perfectly inexplicable to those who were merely unconcerned spectators. In consequence of this unshackled freedom in the composition and delivery of his lectures,

Cullen.

Cullen. tures, every circumstance was in the nicest unison with the tone of voice and expression of countenance, which the particular cast of mind he was in at the time inspired. Was he joyous, all the figures introduced for illustration were fitted to excite hilarity and good humour: was he grave, the objects brought under view were of a nature more solemn and grand: and was he peevish, there was a peculiarity of manner in thought, in word, and in action, which produced a most striking and interesting effect. The languor of a nerveless uniformity was never experienced, nor did an abortive attempt to excite emotions that the speaker himself could not at the time feel, ever produce those discordant ideas which prove disgusting and unpleasing.

It would seem as if Dr Cullen had considered the proper business of a preceptor to be that of putting his pupils into a proper train of study, so as to enable them to prosecute those studies at a future period, and to carry them on much farther than the short time allowed for academical prelections would admit. He did not, therefore, so much strive to make those who attended his lectures deeply versed in the particular details of objects, as to give them a general view of the whole subject; to shew what had been already attained respecting it; to point out what remained yet to be discovered; and to put them into a train of study that should enable them, at a future period, to remove those difficulties that had hitherto obstructed our progress, and thus to advance themselves to farther and farther degrees of perfection. If these were his views, nothing could be more happily adapted to them than the mode he invariably pursued. He first drew, with the striking touches of a master, a rapid and general outline of the subject, by which the whole figure was seen at once to start boldly from the canvas, distinct in all its parts, and unmixt with any other object. He then began anew to retrace the picture, to touch up the lesser parts, and to finish the whole in as perfect a manner as the state of our knowledge at the time would permit. Where materials were wanting, the picture there continued to remain imperfect. The wants were thus rendered obvious; and the means of supplying these were pointed out with the most careful discrimination. The student, whenever he looked back to the subject, perceived the defects; and his hopes being awakened, he felt an irresistible impulse to explore that hitherto untrodden path which had been pointed out to him, and fill up the chasm which still remained. Thus were the active faculties of the mind most powerfully excited; and instead of labouring himself to supply deficiencies that far exceeded the power of any one man to accomplish, he set thousands at work to fulfil the task, and put them into a train of going on with it.

It was to these talents, and to this mode of applying them, that Dr Cullen owed his celebrity as a professor; and it was in this manner that he has perhaps done more towards the advancement of science than any other man of his time, though many individuals might perhaps be found who were more deeply versed in the particular departments he taught than he himself was.

Dr Cullen's external appearance, though striking and not unpleasing, was not elegant. He had an expressive countenance, and a lively eye. In his person he

was tall and thin, stooping much about the shoulders; and when he walked, he had a contemplative look, seemingly regarding little the objects around him. According to the observation of one who was well acquainted with the character of Cullen, he was eminently distinguished as a professor for three things. "The energy of his mind, by which he viewed every subject with ardour, and combined it immediately with the whole of his knowledge.

"The scientific arrangement which he gave to his subject, by which there was a *lucidus ordo* to the dullest scholar. He was the first person in this country who made chemistry cease to be a chaos.

"A wonderful art of interesting the students in every thing which he taught, and of raising an emulative enthusiasm among them." *Life of Cullen by Dr Anderson in the Bee.*

CULLODEN, a place in Scotland within two miles of Inverness, chiefly remarkable for a complete victory gained over the rebels on the 16th of April 1746. That day the royal army, commanded by the duke of Cumberland, began their march from Nairn, formed into five lines of three battalions each; headed by Major-general Huske on the left, Lord Sempill on the right, and Brigadier Mordaunt in the centre; flanked by the horse under the Generals Hawley and Bland, who at the same time covered the cannon on the right and left. In this order they marched about eight miles, when a detachment of Kingston's horse, and of the Highlanders, having advanced before the rest of the army, discovered the van of the rebels commanded by the young Pretender. Both armies immediately formed in the order and numbers shown in the annexed scheme.

About two in the afternoon the rebels began to cannonade the king's army; but their artillery being ill served, did little execution; while the fire from their enemies was severely felt, and occasioned great disorder. The rebels then made a push at the right of the royal army, in order to draw the troops forward; but finding themselves disappointed, they turned their whole force on the left; falling chiefly on Barrell's and Monro's regiments, where they attempted to flank the king's front line. But this design also was defeated by the advancing of Wolfe's regiment, while in the mean time the cannon kept playing upon them with cartridge-shot. General Hawley, with some Highlanders, had opened a passage through some stone walls to the right for the horse which advanced on that side; while the horse on the king's right wheeled off upon their left, dispersed their body of reserve, and met in the centre of their front line in their rear; when being repulsed in the front, and great numbers of them cut off, the rebels fell into very great confusion. A dreadful carnage was made by the cavalry on their backs; however, some part of the foot still preserved their order; but Kingston's horse, from the reserve, galloped up briskly, and falling upon the fugitives, did terrible execution. A total defeat instantly took place, with the loss of 2500 killed, wounded, and prisoners, on the part of the rebels, while the royalists lost not above 200. The young Pretender had his horse shot under him during the engagement; and after the battle retired to the

Culloden, Culm.

house of a factor of Lord Lovat, about ten miles from Inverness, where he staid that night. Next day he set out for Fort-Augustus, from whence he pursued his journey through wild deserts with great difficulty and distress, till at last he safely reached France, as related under the article BRITAIN, N^o 423. (A).

CULM, or CULMUS, among botanists, a straw or haulm; defined by Linnæus to be the proper trunk of the grasses, which elevates the leaves, flower, and fruit.

This sort of trunk is tubular or hollow, and has frequently knots or joints distributed at proper distances through its whole length. The leaves are long, sleek, and placed either near the roots in great numbers, or proceed singly from the different joints of the stalk, which they embrace at the base, like a sheath or glove.

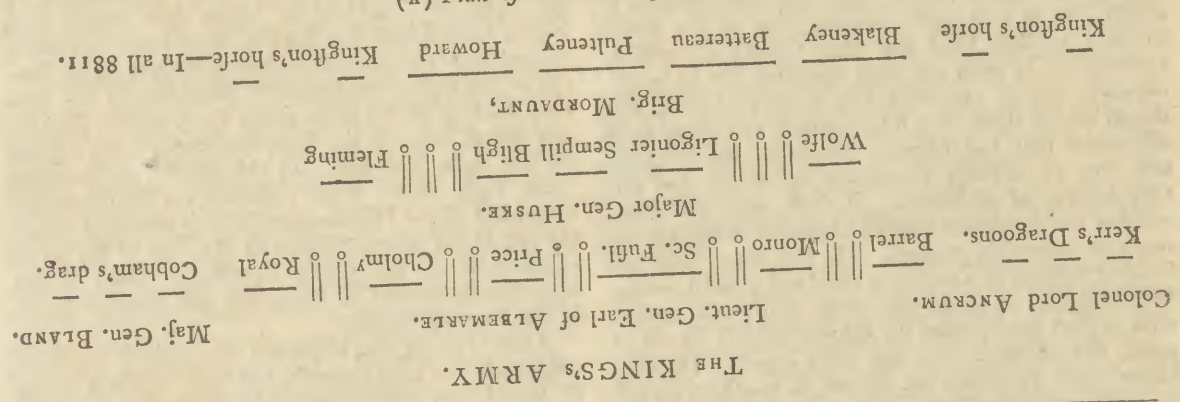
The haulm is commonly garnished with leaves: sometimes, however, it is naked; that is, devoid of leaves, as in a few species of cypress-grass. Most grasses have a round cylindrical stalk; in some species of scænus, scirpus, cypress grass, and others, it is triangular.

The stalk is sometimes entire, that is, has no branches; sometimes branching, as in *scænus aculeatus et capensis*; and not seldom consists of a number of scales, which lie over each other like tiles.

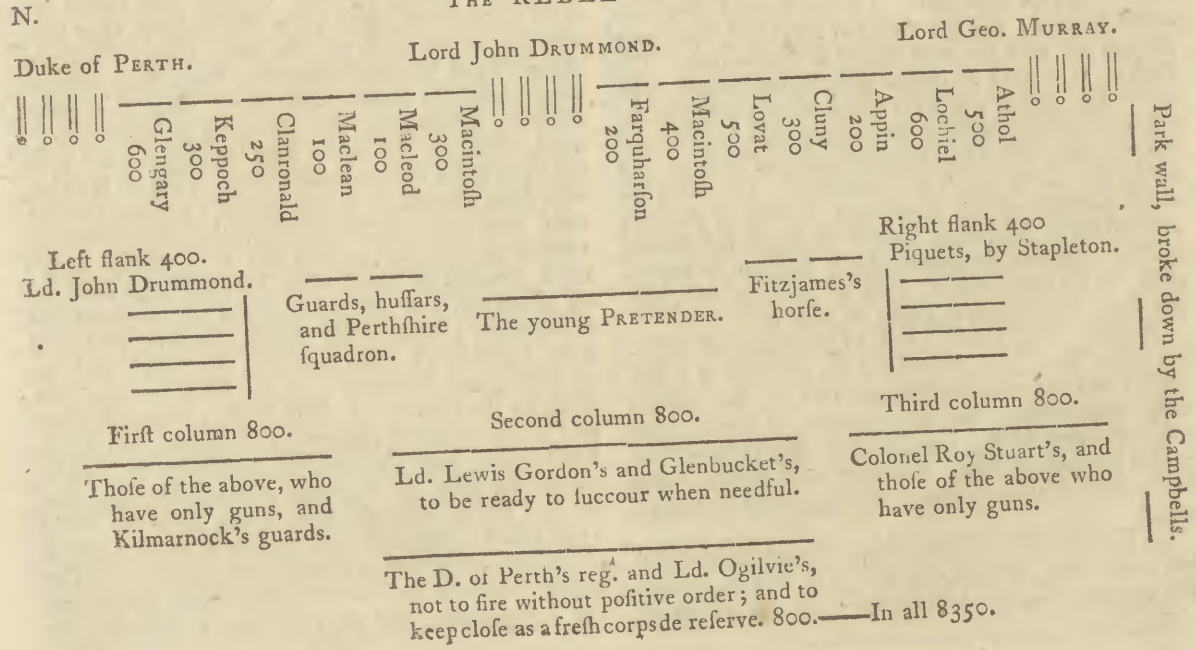
Lastly, in a few grasses, the stalk is not interrupted with joints, as in the greater part. The space contained betwixt every two knots or joints, is termed by botanists *internodium*, and *articulus culmi*.

This species of trunk often affords certain marks of distinction in discriminating the species. Thus in the genus eriocaulon, the species are scarce to be distinguished

(A) Plan of the Battle of Culloden.



THE REBEL ARMY.



Culmiferous
||
Cumberland.

Cumberland
||
Cuneus.

guished but by the angles of the culms or stalks. These in some species are in number 5, in others 6, and in others 10.

CULMIFEROUS PLANTS. (from *culmus*, a straw or haulm): plants so called, which have a smooth jointed stalk, usually hollow, and wrapped about at each joint with single, narrow, sharp-pointed leaves, and the seeds contained in chaffy husks; such are oats, wheat, barley, rye, and the other plants of the natural family of the GRASSES.

CULMINATION, in *Astronomy*, the passage of any heavenly body over the meridian, or its greatest altitude for that day.

CULPRIT, a term used by the clerk of the arraignments, when a person is indicted for a criminal matter. See *PLEA to Indictment*, par. 11.

CULROSS, a royal borough town in Scotland, situated on the river Forth, about twenty-three miles north-west of Edinburgh. Here is a magnificent house, which was built about the year 1590 by Edward Lord Kinlofs, better known in England by the name of Lord Bruce, slain in the noted duel between him and Sir Edward Sackville. Some poor remains of the Cistercian abbey are still to be seen here, founded by Malcolm earl of Fife in 1217. The church was jointly dedicated to the Virgin and St Serf confessor. The revenue at the dissolution was 768 pounds Scots, besides the rents paid in kind. The number of monks, exclusive of the abbot, was nine. W. Long. 3. 34. N. Lat. 56. 8.

CULVERIN, a long slender piece of ordnance or artillery, serving to carry a ball to a great distance. Manège derives the word from the Latin *colubrina*; others from *coluber*, "snake;" either on account of the length and slenderness of the piece, or of the ravages it makes.

There are three kinds of culverins, viz. the extraordinary, the ordinary, and the least sized. 1. The culverin extraordinary has $5\frac{1}{2}$ inches bore; its length 32 calibers, or 13 feet; weighs 4800 pounds; its load above 12 pounds; carries a shot $5\frac{1}{2}$ inches diameter, weighing 20 pounds weight. 2. The ordinary culverin is 12 feet long; carries a ball of 17 pounds 5 ounces; caliber $5\frac{1}{2}$ inches; its weight 4500 pounds. 3. The culverin of the least size, has its diameter 5 inches; is 12 feet long; weighing about 4000 pounds; carries a shot $3\frac{1}{4}$ inches diameter, weighing 14 pounds 9 ounces.

CULVERTAILED, among shipwrights, signifies the fastening or letting of one timber into another, so that they cannot slip out, as the corlings into the beams of a ship.

CUMA, or **CUMÆ**, in *Ancient Geography*, a town of Æolia in Asia Minor. The inhabitants have been accused of stupidity for not laying a tax upon all the goods which entered their harbour during 300 years. They were called *Cumani*.

CUMÆ, or **CUMA**, in *Ancient Geography*, a city of Campania near Puteoli, founded by a colony from Chalcis and Cumæ of Æolia before the Trojan war. The inhabitants were called *Cumæi*. One of the Sibyls fixed her residence in a cave in the neighbourhood, and was called the *Cumean Sibyl*.

CUMBERLAND, **CUMBRIA**, so denominating from the *Cumbri*, or Britons who inhabited it; one of the

most northerly counties in England. It was formerly a kingdom, extending from the vallum of Adrian to the city of Dumbrition, now *Dumbarton* on the frith of Clyde in Scotland. At present it is a county of England, which gives the title of duke to one of the royal family, and sends two members to parliament. It is bounded on the north and north-west by Scotland; on the south and south-east by part of Lancashire and Westmorland: it borders on the east with Northumberland and Durham; and on the west is washed by the Irish sea. The length from north to south may amount to 55 miles, but the breadth does not exceed 40. It is well watered with rivers, lakes, and fountains; but none of its streams are navigable. In some places there are very high mountains. The air is keen and piercing on these mountains, towards the north; and the climate is moist, as in all hilly countries. The soil varies with the face of the country; being barren on the moors and mountains, but fertile in the valleys and level ground bordering on the sea. In general, the eastern parts of the shire are barren and desolate; yet even the least fertile parts are rich in metals and minerals. The mountains of Copland abound with copper: veins of the same metal, with a mixture of gold and silver, were found in the reign of Queen Elizabeth among the fells of Derwent; and royal mines were formerly wrought at Kewick. The county produces great quantities of coal, some lead, abundance of the mineral earth called *black-lead*, several mines of lapis calaminaris: and an inconsiderable pearl-fishery on the coast near Raven-glass.

CUMBERLAND, *Richard*, a very learned English divine in the latter end of the 17th century, was son of a citizen of London, and educated at Cambridge. In 1672 he published his excellent *Treatise of the Laws of Nature*; and in 1686, *An Essay toward the Jewish Weights and Measures*. After the Revolution he was nominated by King William to the bishopric of Peterborough, without the least solicitation on his part. He pursued his studies to the last; and the world is obliged to him for clearing up several difficulties in history, chronology, and philosophy. After the age of 83, he applied himself to the study of the Coptic language, of which he made himself master. He was as remarkable for humility of mind, benevolence of temper, and innocence of life, as for his extensive learning. He died in 1718.

CUMINUM, **CUMIN**: A genus of plants belonging to the pentandria class; and in the natural method ranking under the 45th order, *Umbellatæ*. See *BOTANY Index*.

CUNÆUS, **PETER**, born in Zealand in 1586, was distinguished by his knowledge in the learned languages, and his skill in the Jewish antiquities. He also studied law, which he taught at Leyden in 1615; and read politics there till his death, in 1638. His principal work is a treatise, in Latin, on the republic of the Hebrews.

CUNEIFORM, in general, an appellation given to any body having the shape of a wedge.

CUNEIFORM-Bone, in *Anatomy*, the seventh bone of the cranium, called also *os basilare*, and *os sphenoides*. See *ANATOMY Index*.

CUNEUS, in antiquity, a company of infantry drawn

Cuniculus drawn up in form of a wedge, the better to break through the enemy's ranks.

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CUNICULUS. See LEPUS, MAMMALIA Index.

CUNICULUS, in mining, a term used by authors in distinction from *puteus*, to express the several sorts of passages and cuts in these subterranean works. The *cuniculi* are those direct passages in mines where they walk on horizontally; but the *putei* are the perpendicular cuts or descents. The miners in Germany call these by the name *stollen*, and *schachts*; the first word expressing the horizontal, and the second the perpendicular cuts.

CUNILA, a genus of plants belonging to the monandria class; and in the natural method ranking under the 42d order, *Verticillatæ*. See BOTANY Index.

CUNINA, in *Mythology*, a goddess who had the care of little children.

CUNITZ, or CUNITIA, MARIA, astronomer, was the eldest daughter of Hendric Cunitz, doctor of medicine in Silesia, and was born about the beginning of the 17th century. She learned languages with amazing facility; and understood Polish, German, French, Italian, Latin, Greek, and Hebrew. She attained a knowledge of the sciences with equal ease: she was skilled in history, physic, poetry, painting, music, and playing upon instruments; and yet these were only an amusement. She more particularly applied herself to the mathematics, and especially to astronomy, which she made her principal study, and was ranked in the number of the most able astronomers of her time. Her Astronomical Tables acquired her a prodigious reputation: she printed them in Latin and German, and dedicated them to the emperor Ferdinand III. She married Elias de Lewin, M. D. and died at Pissehen in 1664.

CUNNINGHAM, one of the four bailiwicks in Scotland; and one of the three into which the shire of Air is subdivided. It lies north-east of Kyle. It contains the sea-port towns of Irvine and Salcoats.

CUNNINGHAM, *Alexander*, author of a History of Great Britain from the Revolution to the accession of George I. was born in the south of Scotland about the year 1654, in the regency of Oliver Cromwell. His father was minister at Etrick, in the presbytery and shire of Selkirk. He was educated, as was the custom among the Scottish presbyterian gentlemen of those times, in Holland; where he imbibed his principles of government, and lived much with the English and Scots refugees at the Hague before the revolution, particularly with the earls of Argyle and Sunderland. He came over to England with the prince of Orange, and enjoyed the confidence and intimacy of many leading men among the whig party, that is, the friends and abettors of King William and the revolution. He was employed, at different times, in the character of a travelling companion or tutor; first, to the earl of Hyndford, and his brother Mr William Carmichael, solicitor-general, in the reign of Queen Anne, for Scotland; secondly, with the lord Lorne, afterwards so well known under the name of *John Duke of Argyle*; and thirdly, with the lord viscount Lonsdale. In his travels, we find him, at the German courts, in company with the celebrated Mr Joseph Addison, whose virtues he celebrates.

Lord Lorne, at the time he was under the tuition of Mr Cunningham, though not seventeen years of age, was colonel of a regiment, which his father, the earl of Argyle, had raised for his majesty's service in Flanders. Mr Cunningham's connection with the duke of Argyle, with whom he had the honour of maintaining an intimacy as long as he lived, together with the opportunities he enjoyed of learning, in his travels, what may be called *military geography*, naturally tended to qualify him for writing on military affairs.

Mr Cunningham, both when he travelled with the nobleman above-mentioned, and on other occasions, was employed by the English ministry in transmitting secret intelligence to them on the most important subjects. He was also, on sundry occasions, employed by the generals of the confederate armies, to carry intelligence, and to make representations to the court of Britain. In Carstairs's State Papers, published by Dr Macormick, principal of the United College of St Andrew's, in 1774, there are two letters from our author, dated Paris the 22d and 26th of August 1701, giving an account of his conferences with the marquis de Torcy, the French minister, relative to the Scots trade with France. This commercial negotiation, from the tenor of Cunningham's letters compared with his history, appears to have been only the ostensible object of his attention: for he sent an exact account to King William, with whom he was personally acquainted, of the military preparations throughout all France.

Mr Cunningham's political friends, Argyle, Sunderland, Sir Robert Walpole, &c. on the accession of George I. sent him as British envoy to the republic of Venice. He arrived in that city in 1715; and continued there, in the character of resident, till the year 1720, when he returned again to London. He lived many years after, which he seems chiefly to have passed in a studious retirement. In 1735, he was visited in London by Lord Hyndford, by the direction of his lordship's father, to whom he had been tutor, when he appeared to be very old. He seems to have lived about two years after: for the body of an Alexander Cunningham lies interred in the vicar chancel of St Martin's church, who died in the 83d year of his age, on the 15th day of May 1737; and who was probably the same person.

“His “History of Great Britain, from the revolution in 1688 to the accession of George I.” was published in two volumes 4to, in 1787. It was written by Mr Cunningham in Latin, but was translated into English by the reverend William Thomson, LL. D. The original manuscript came into the possession of the reverend Dr Hollingberry, archdeacon of Chichester, some of whose relations had been connected with the author. He communicated it to the earl of Hardwicke, and to the reverend Dr Douglas, now bishop of Carlisle, both of whom recommended the publication. In a short preface to the work, the archdeacon says, “My first design was to have produced it in the original; but knowing how few are sufficiently learned to understand, and how many are indisposed to read two quarto volumes in Latin, however interesting and entertaining the subject may be, I altered my purpose, and intended to have sent it into the world in a translation.”

Cunning-
ham.

Cunning-
ham
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Cunoce-
phali.

lation. A nervous fever depriving me of the power, defeated the scheme." But he afterwards transferred the undertaking to Dr Thomson; and Dr Hollingberry observes, that Dr Thomson "has expressed the sense of the author with fidelity." The work was undoubtedly well deserving of publication. It contains the history of a very interesting period, written by a man who had a considerable degree of authentic information, and his book contains many curious particulars not to be found in other histories. His characters are often drawn with judgment and impartiality; at other times they are somewhat tinged with prejudice. This is particularly the case with respect to Bishop Burnet, against whom he appears to have conceived a strong personal dislike. But he was manifestly a very attentive observer of the transactions of his own time; his work contains many just political remarks; and the facts which he relates are exhibited with great perspicuity, and often with much animation. Throughout his book he frequently intersperses some account of the literature, and of the most eminent persons of the age concerning which he writes; and he has also adorned his work with many allusions to the classics and to ancient history.

Alexander Cunningham, the author of the History of Great Britain, has been supposed to be the same person with Alexander Cunningham who published an edition of Horace at the Hague, in two volumes 8vo, in 1721, which is highly esteemed. But from the best information we have been able to collect, they were certainly different persons; though they were both of the same name, lived at the same time, had both been travelling tutors, were both said to have been eminent for their skill at the game of chess, and both lived to a very advanced age. The editor of Horace is generally said to have died in Holland, where he taught both the civil and canon laws, and where he had collected a very large library, which was sold in that country.

CUNNUS, in *Anatomy*, the *pubendum muliebre*, or the anterior parts of the genitals of a woman, including the *labia pudendi* and *mons veneris*. See ANATOMY, N^o 108.

CUNOCEPHALI, in *Mythology*, (from *κυν* "dog," and *κεφαλη*, "head,") a kind of baboons, or animals with heads like those of dogs, which were wonderfully endowed, and were preserved with great veneration by the Egyptians in many of their temples. It is related, that by their assistance the Egyptians found out the particular periods of the sun and moon; and that one half of the animal was often buried, while the other half survived; and that they could read and write. This strange history, Dr Bryant imagines, relates to the priests of Egypt, styled *caben*, to the novices in their temples, and to the examinations they were obliged to undergo, before they could be admitted to the priesthood. The Egyptian colleges were situated upon rocks or hills, called *caph*, and from their consecration to the sun, *caph-el*; whence the Greeks deduced *κεφαλη*, and from *caben-caph-el* they formed *κυνκεφαλος*. So that *caben-caph-el* was some royal feminary in Upper Egypt, whence they draughted novices to supply their colleges and temples. By this etymology he explains the above history. The death

of one part, while the other survived, denoted the regular succession of the Egyptian priesthood. The *cunocephali* are also found in India and other parts of the world. These and the *acephali* were thus denominated from their place of residence and from their worship.

CUNODONTES, a people mentioned by Solinus and Isidorus, and by them supposed to have the teeth of dogs. They were probably denominated, says Dr Bryant, from the object of their worship, the deity Chan-Adon, which the Greeks expressed *Κυνοδων*, and thence called his votaries *Cunodontes*.

CUNONIA: A genus of plants belonging to the decandria class; and in the natural method ranking with those of which the order is doubtful. See BOTANY *Index*.

CUOGOLO, in *Natural History*, the name of a stone much used by the Venetians in glass-making, and found in the river Fesino. It is a small stone of an impure white, of a shattery texture, and is of the shape of a pebble.

CUP, a vessel of capacity of various forms and materials, chiefly to drink out of. In the Ephem. German. we have a description of a cup made of a common pepper-corn by Oswald Nerlinger, which holds 1200 other ivory cups, having each its several handle, all gilt on the edges; with room for 400 more.

CUP, in *Botany*. See CALYX, BOTANY *Index*.

Cup-Galls, in *Natural History*, a name given by authors to a very singular kind of galls, found on the leaves of the oak and some other trees. They are of the figure of a cup, or drinking-glass without its foot, being regular cones adhering by their point or apex to the leaf; and the top or broad part is hollowed a little way, so that it appears like a drinking-glass with a cover, which was made so small as not to close it at the mouth, but fall a little way into it. This cover is flat, and has in the centre a very small protuberance, resembling the nipple of a woman's breast. This is of a pale green, as is also the whole of the gall, excepting only its rim that runs round the top: this is of a scarlet colour, and that very beautiful. Besides this species of gall, the oak leaves furnish us with several others, some of which are oblong, some round, and others flatted; these are of various sizes, and appear on the leaves at various seasons of the year. They all contain the worm of some small fly; and this creature passes all its changes in this its habitation, being sometimes found in the worm, sometimes in the nymph, and sometimes in the fly state, in the cavity of it.

CUPANIA, in *Botany*: A genus of plants belonging to the monœcia class; and in the natural method ranking under the 38th order, *Tricocœ*. See BOTANY *Index*.

CUPEL, in *Metallurgy*, a small vessel which absorbs metallic bodies when changed by fire into a fluid scoria; but retains them as long as they continue in their metallic state. One of the most proper materials for making a vessel of this kind is the ashes of animal bones; there is scarcely any other substance which so strongly resists vehement fire, which is so readily imbibes metallic scoriæ, and which so little disposed to be vitrified by them. In want of these, some make
use

Cunodon-
tes
||
Cupel.

Cupel,
Cupella-
tion.

use of vegetable ashes, freed by boiling in water from their saline matter, which would cause them melt in the fire.

The bones, burnt to perfect whiteness, so that no particle of coaly or inflammable matter may remain in them, and well washed from filth, are ground into moderately fine powder; which in order to its being formed into cupels, is moistened with just as much water as is sufficient to make it hold together when strongly pressed between the fingers; some direct glutinous liquids, as whites of eggs or gum-water, in order to give the powder a greater tenacity: but the inflammable matter, however small in quantity, which accompanies these fluids, and cannot be easily burnt out from the internal part of the mass, is apt to revive a part of the metallic scoria that has been absorbed, and to occasion the vessel to burst or crack. The cupel is formed in a brass ring, from three quarters of an inch to two inches diameter, and not quite so deep, placed upon some smooth support: the ring being filled with moistened powder, which is pressed close with the fingers; a round-faced pestle, called a *monk*, is struck down into it with a few blows of a mallet, by which the mass is made to cohere, and rendered sufficiently compact, and a shallow cavity formed in the middle: the figure of the cavity is nearly that of a sphere, that a small quantity of metal melted in it may run together into one bead. To make the cavity the smoother, a little of the same kind of ashes levigated into an impalpable powder, and not moistened, is commonly sprinkled on the surface, through a small fine sieve made for this purpose, and the monk again struck down upon it. The ring or mould is a little narrower at bottom than at top; so that by pressing it down on some of the dry powder spread upon a table, the cupel is loosened, and forced upwards a little; after which it is easily pushed out with the finger, and is then set to dry in a warm place free from dust.

CUPELLATION, the act of refining gold or silver by means of a cupel. For this purpose another vessel, called a *muffle*, is made use of, within which one or more cupels are placed. The muffle is placed upon a grate in a proper furnace, with its mouth facing the door, and as close to it as may be. The furnace being filled up with fuel, some lighted charcoal is thrown on the top, and what fuel is afterwards necessary is supplied through a door above. The cupels are set in the muffle; and being gradually heated by the successive kindling of the fuel, they are kept red-hot for some time, that the moisture which they strongly retain may be completely dissipated: for if any vapours should issue from them after the metal is put in, they would occasion it to sputter, and a part of it to be thrown off in little drops. In the sides of the muffle are some perpendicular slits, with a knob over the top of each, to prevent any small pieces of coals or ashes from falling in. The door, or some apertures made in it, being kept open, for the inspection of the cupels, fresh air enters into the muffle, and passes off through these slits: by laying some burning charcoal on an iron plate before the door, the air is heated before its admission; and by removing the charcoal, or supplying more, the heat in the cavity of the muffle may be somewhat diminished or increased more speedily than

can be effected by suppressing or exciting the fire in the furnace on the outside of the muffle. The renewal of the air is also necessary for promoting the scorification of the lead. Cupella-
tion.

The cupel being of a full red heat, the lead cast into a smooth bullet, that it may not scratch or injure the surface, is laid lightly in the cavity; it immediately melts; and then the gold or silver to be cupelled is cautiously introduced either by means of a small iron ladle, or by wrapping them in paper, and dropping them on the lead with a pair of tongs. The quantity of lead should be at least three or four times that of the fine metal: but when gold is very impure, it requires 10 or 12 times its quantity of lead for cupellation. It is reckoned that copper requires for its scorification about 10 times its weight of lead: that when copper and gold are mixed in equal quantities, the copper is so much defended by the gold, as not to be separable with less than 20 times its weight of lead; and that when copper is in very small proportion, as a 20th or 30th part of the gold or silver, upwards of 60 parts of lead are necessary for one of the copper. The cupel must always weigh at least half as much as the lead and copper; for otherwise it will not be sufficient for receiving half the scoria: there is little danger, however, of cupels being made too small for the quantity of a gold assay.

The mixture being brought into thin fusion, the heat is to be regulated according to the appearances; and in this consists the principal nicety in the operation. If a various coloured skin rises to the top, which liquefying, runs off to the sides, and is there absorbed by the cupel, visibly staining the parts it enters; if a fresh scoria continually succeeds, and is absorbed nearly as fast as it is formed, only a fine circle of it remaining round the edge of the metal; if the lead appears in gentle motion, and throws up a fume a little way from the surface; the fire is of the proper degree, and the process goes on successfully.

Such a fiery brightness of the cupel as prevents its colour from being distinguished, and the fumes of the lead rising up almost to the arch of the muffle, are marks of too strong a heat; though it must be observed, that the elevation of the fumes is not always in proportion to the degree of heat; for if the heat greatly exceeds the due limits, both the fumes and ebullition will entirely cease. In these circumstances the fire must necessarily be diminished: for while the lead boils and smokes vehemently, its fumes are apt to carry off some part of the gold; the cupel is liable to crack from the hasty absorption of the scoria, and part of the gold and silver is divided into globules, which lying discontinued on the cupel after the process is finished, cannot easily be collected; if there is no ebullition or fumes, the scorification does not appear to go on. Too weak a heat is known by the dull redness of the cupel; by the fume not rising from the surface of the lead; and the scoria like bright drops in languid motion, or accumulated, or growing consistent all over the metal. The form of the surface affords also an useful mark of the degree of heat; the stronger the fire, the more convex is the surface; and the weaker, the more flat: in this point, however, regard must be had to the quantity of metal; a large quantity being always flatter than a small one in an equal fire.

Towards

Cupelling
Furnace
||
Cupressus.

Towards the end of the process, the fire must be increased; for the greatest part of the fusible metal lead being now worked off, the gold and silver will not continue melted in the heat that was sufficient before. As the last remains of the lead are separating, the rainbow colours on the surface become more vivid, and variously intersect one another with quick motions. Soon after, disappearing all at once, a sudden luminous brightness of the button of gold and silver shows the process to be finished. The cupel is then drawn forwards towards the mouth of the muffle; and the button, as soon as grown fully solid, taken out.

CUPPELLING FURNACE. See *Cupelling Furnace*.

CUPID, in Pagan mythology, the god of love. There seems to have been two Cupids; one the son of Jupiter and Venus, whose delight it was to raise sentiments of love and virtue; and the other the son of Mars and the same goddess, who inspired base and impure desires. The first of these, called Eros, or true love, bore golden arrows, which caused real joy, and a virtuous affection; the other, called Anteros, had leaden arrows, that raised a passion founded only on desire, which ended in satiety and disgust. Cupid was always drawn with wings, to represent his inconstancy; and naked, to show that he has nothing of his own. He was painted blind, to denote that love sees no fault in the object beloved; and with a bow and quiver of arrows, to show his power over the mind. Sometimes he is placed between Hercules and Mercury, to show the prevalence of eloquence and valour in love; and at others is placed near Fortune, to signify that the success of lovers depends on that inconstant goddess. Sometimes he is represented with a helmet on his head and a spear on his shoulder, to signify that love disarms the fiercest men; he rides upon the backs of panthers and lions, and uses their manes for a bridle, to denote that love tames the most savage beasts. He is likewise pictured riding upon a dolphin, to signify that his empire extends over the sea no less than land.

CUPOLA, in *Architecture*, a spherical vault, or the round top of the dome of a church, in the form of a cup inverted.

CUPPING, in *Surgery*, the operation of applying cupping-glasses for the discharge of blood and other humours by the skin. See *SURGERY*.

CUPRESSUS, the **CYPRESS TREE**: A genus of plants belonging to the monœcia class; and in the natural method ranking under the 51st order, *Corifera*. See *BOTANY Index*.

The wood of the *sempervirens*, or evergreen cypress, is said to resist worms, moths, and putrefaction, and to last many centuries. The coffins in which the Athenians were wont to bury their heroes, were made, says Thucydides, of this wood; as were likewise the chests containing the Egyptian mummies. The doors of St Peter's church at Rome were originally of the same materials. These, after lasting upwards of 600 years, at the end of which they did not discover the smallest tendency to corruption, were removed by order of Pope Eugenius IV. and gates of brass substituted in their place. The same tree is by many eminent authors recommended as improving and meliorating the air by its balsamic and aromatic exhalations; upon

which account many ancient physicians of the eastern countries used to send their patients who were troubled with weak lungs to the island of Candia, where these trees grew in great abundance; and where, from the salubrious air alone, very few failed of a perfect cure. In the same island, says Miller, the cypress-trees were so lucrative a commodity, that the plantations were called *dos filie*; the felling of them being reckoned a daughter's portion. Cypress, says Mr Pococke, is the only tree that grows towards the top of Mount Lebanon, and being nipped by the cold, grows like a small oak. Noah's ark is commonly supposed to have been made of this kind of wood.

CUPRUM AMMONIACALE. See *CHEMISTRY Index*. This preparation is recommended in some kinds of spasmodic diseases, given in the dose of one or two grains.

CUPRUM, or *Copper*. See *COPPER*, *CHEMISTRY Index*.

CURACOA, or **CURASSOW**, one of the larger Antilles islands, subject to the Dutch; situated in W. Long. 68. 30. N. Lat. 12. 30. This island is little else than a bare rock, about ten leagues long and five broad; lying three leagues off the coast of Venezuela. It has an excellent harbour, but the entrance is difficult. The basin is extremely large, and convenient in every respect; and is defended by a fort skilfully constructed, and always kept in repair. The reason of forming a settlement upon this barren spot, was to carry on a contraband trade with the Spanish colonies on the continent; but after some time the method of managing this trade was changed. Curassow itself became an immense magazine, to which the Spaniards resorted in their boats to exchange gold, silver, vanilla, cocoa, cochineal, bark, skins, and mules, for negroes, linen, silks, India stuffs, spices, laces, ribbands, quicksilver, steel, and iron-ware. These voyages, though continual, did not prevent a number of Dutch sloops from passing from Curassow to the continent. But the modern substitution of register-ships, instead of galleons, has made this communication less frequent; but it will be revived whenever, by the intervention of war, the communication with the Spanish Main shall be cut off. The disputes between the courts of London and Versailles also prove favourable to the trade of Curassow. At these times it furnishes provisions to the southern parts of St Domingo, and takes off all its produce. Even the French privateers, from the windward islands, repair in great numbers to Curassow, notwithstanding the distance. The reason is, that they find there all kinds of necessary stores for their vessels; and frequently Spanish, but always European goods, which are universally used. English privateers seldom cruise in these parts. Every commodity without exception, that is landed at Curassow, pays one per cent. port-duty. Dutch goods are never taxed higher; but those that are shipped from other European ports pay nine per cent. more. Foreign coffee is subject to the same tax, in order to promote the sale of that of Surinam. Every other production of America is subject only to a payment of three per cent. but with an express stipulation, that they are to be conveyed directly to some port belonging to the republic.

CURATE, the lowest degree in the church of England;

Cuprum
Ammoniacale
||
Curate.

Curatella
||
Curb.

land; he who represents the incumbent of a church, parson, or vicar, and performs divine service in his stead: and in case of pluralities of livings, or where a clergyman is old and infirm, it is requisite there should be a curate to perform the cure of the church. He is to be licensed, and admitted by the bishop of the diocese, or by an ordinary having episcopal jurisdiction; and when a curate hath the approbation of the bishop, he usually appoints the salary too; and in such case, if he be not paid, the curate hath a proper remedy in the ecclesiastical court, by a sequestration of the profits of the benefice; but if the curate is not licensed by the bishop, he is put to his remedy at common law, where he must prove the agreement, &c. A curate having no fixed estate in his curacy, not being instituted and inducted, may be removed at pleasure by the bishop or incumbent. But there are perpetual curates as well as temporary, who are appointed where tithes are impropriate, and no vicarage endowed: these are not removeable, and the impropriators are obliged to find them; some whereof have certain portions of the tithes settled on them. Every clergyman that officiates in a church (whether incumbent or substitute) in the liturgy is called a *curate*. Curates must subscribe the declaration according to the act of uniformity, or are liable to imprisonment, &c.

CURATELLA: A genus of plants belonging to the polyandria class; and in the natural method ranking with those of which the order is doubtful. See *BOTANY Index*.

CURATOR, among the Romans, an officer under the emperors, who regulated the price of all kinds of merchandize and vendible commodities in the cities of the empire. They had likewise the superintendance of the customs and tributes; whence also they were called *logistæ*.

CURATOR, among civilians, a trustee or person nominated to take care of the affairs and interests of a person emancipated or interdicted. In countries where the Roman law prevails, between the age of 14 and 24 years, minors have curators assigned them; till 14, they have tutors.

CURATOR of an University, in the United Provinces, is an elective office, to which belongs the direction of the affairs of the university; as, the administration of the revenues, the inspection of the professors, &c. The curators are chosen by the states of each province: The university of Leyden has three; the burgher-masters of the city have a fourth.

CURB, in the manege, a chain of iron made fast to the upper part of the branches of the bridle in a hole called the *eye*, and running over the horse's beard. It consists of these three parts; the hook fixed to the eye of the branch; the chain of SS's or links; and the two rings, or mailles. Large curbs, provided they be round, are always most gentle; but care is to be taken, that it rest in its proper place, a little above the beard, otherwise the bit-mouth will not have the effect that may be expected from it.

English watering bits have no curbs; the Turkish bits, called *genettes*, have a ring that serves instead of a curb. See *GENETTES*.

CURB, in *Farriery*, is a hard and callous swelling on the hind part of the hock, attended with stiffness, and sometimes with pain and lameness. See *SPAVIN*.

CURCAS, a name given in Egypt to an esculent root, approaching to the taste and virtues of the colocasia. It is also a name used in Malabar for a small fruit of the shape and size of a hazel nut. Both these things have the credit of being strong provocatives: and it is very probable that the curcas of the East Indies may be the fruit called *bell* by Avicenna, and said to possess the same virtues. Garcias has been led into a very great error by this similarity of names and virtues; and supposes the curcas of Egypt the same with that of the East Indies.

CURCULIO, a genus of insects belonging to the order of coleoptera. See *ENTOMOLOGY Index*.

CURCUMA, *TURMERIC*: A genus of plants belonging to the monandria class; and in the natural method ranking under the 8th order, *Scitamineæ*. See *BOTANY Index*.

CURDISTAN, a country of Asia, situated between the Turkish empire and Persia, lying along the eastern coast of the river Tigris, and comprehending great part of the ancient Assyria. Some of the inhabitants live in towns and villages, and others rove from place to place, having tents like the wild Arabs, and are also robbers like them. Their religion is partly Christian, and partly Mahometanism.

CURDLING, the coagulating or fixing of any fluid body; particularly milk. See *CHEESE*, *AGRICULTURE Index*.

Paulanias says, that Aristæus son of Apollo, and Cyrene, daughter of the river Peneus, were the first who found out the secret of curdling milk.

At Florence they curdle their milk for the making of cheese with artichoke flowers, in lieu of the rennet used for the same purpose among us.

The Bisaltæ, a people of Macedonia, Rochfort observes, live wholly upon curdled milk, i. e. on curds. He adds, that curds are the whole food of the people of Upper Auvergne in France, and whey their only drink.

CURETES, in antiquity, a sort of priests or people of the isle of Crete, called also *Corybantes*. See *CORYBANTES* and *CRETE*. The Curetes are said to have been originally of Mount Ida in Phrygia; for which reason they were also called *Idæi Dactyli*. See *DACTYLI*.

Lucian and Diodorus Siculus represent them as very expert in casting of darts; though other authors give them no weapons but bucklers and pikes: but all agree in furnishing them with tabors and castanets: and relate, that they used to dance much to the noise and clashing thereof. By this noise, it is said, they prevented Saturn from hearing the cries of young Jupiter, whereby he was saved from being destroyed.

Some authors, however, give a different account of the Curetes. According to Pezron and others, the Curetes were, in the times of Saturn, &c. and in the countries of Crete and Phrygia, what the druids were afterwards among the Gauls, &c. i. e. they were priests who had the care of what related to religion and the worship of the gods. Hence, as in those days it was supposed there was no communication with the gods but by divinations, auguries, and the operations of magic; the Curetes passed for magicians and enchanters: to these they added the study of the stars, of nature,

Curcas
||
Curetes.

Curfeu
||
Curia

ture, and poetry; and so were philosophers, astronomers, &c.

Vossius, *de Idolat.* distinguishes three kinds of Curtes; those of Ætolia, those of Phrygia, and those of Crete, who were originally derived from the Phrygians. The first, he says, took their name from *κρηται*, *tonsure*; in regard, from the time of a combat wherein the enemy seized their long hair, they always kept it cut. Those of Phrygia and Crete, he supposes, were so called from *κρηται*, *young man*, in regard they were young, or because they nursed Jupiter when he was young.

CURFEU, CURFEW, or COURFEW, a signal given in cities taken in war, &c. to the inhabitants to go to bed. Pasquin says, it was so called, as being intended to advertise the people to secure themselves from the robberies and debaucheries of the night.

CURFEW-Bell, in French *couvrefeu*, and in law Latin of the middle ages, *ignitegium*, or *pyritegium*, was a signal for all persons to extinguish their fires. The most eminent curfew in England was that established by William the Conqueror, who appointed, under severe penalties, that, at the ringing of a bell at eight o'clock in the evening, every one should put out their lights and fires and go to bed; whence to this day, a bell rung about that time is called a *curfew-bell*. This law was abolished by Henry I. in 1100.

This practice was highly necessary to prevent accidents in those ages when the fires were placed in a hole in the middle of the floor, under an opening in the roof to allow the escape of the smoke. This hole was covered up when the family went to bed. The same practice still exists in some countries, and particularly in some parts of Scotland. But besides securing houses against accidents by fire, the law which was very generally established in Europe for extinguishing or covering fires, was probably meant also to check the turbulence which frequently prevailed in the middle ages, by forcing the people to retire to rest or to keep within doors. From this ancient practice, in the opinion of Beckmann, has arisen a custom in Lower Saxony of saying, when people wish to go home sooner than the company choose, that they hear the *bürgerglocke*, the burgher's bell.

The ringing of the prayer-bell, as it is called, which is still practised in some Protestant countries, according to Beckmann, originated in that of the curfew-bell. Pope John XXIII. dreading that some misfortunes were to befall him, ordered every person on hearing the ignitegium to repeat the *ave Maria* three times, with a view to avert them. When the appearance of a comet, and a dread of the Turks, alarmed all Christendom, Pope Calixtus VIII. increased these periodical times of prayer, by ordering the prayer-bell to be rung also at noon. *Hist. of Invent.* ii. 101.

CURIA, in Roman antiquity, was used for the senate-house. There were several curiæ in Rome; as the *curia calabra*, said to be built by Romulus; the *curia hostilia*, by Tullus Hostilius; and the *curia pompeia*, by Pompey the Great.

CURIA also denoted the places where the curiæ used to assemble. Each of the 30 curiæ of old Rome had a temple or chapel assigned to them for the common performance of their sacrifices, and other offices of their religion; so that they were not unlike our pa-

risies. Some remains of these little temples seem to have subsisted many ages after on the Palatine hill, where Romulus first built the city, and afterwards resided.

CURIA among the Romans, also denoted a portion or division of a tribe. In the time of Romulus, a tribe consisted of ten curiæ, or a thousand men; each curia being one hundred. That legislator made the first division of his people into thirty curiæ. Afterwards *curia* or *domus curialis*, because used for the place where each curia held its assemblies. Hence also curia passed to the senate-house; and it is from hence the moderns came to use the word *curia*, "court," for a place of justice, and for the judges, &c. there assembled.

Varro derives the word from *cura*, "care," *q. d.* an assembly of people charged with the care of public affairs. Others deduce it from the Greeks; maintaining, that at Athens they called *κρηται* the place where the magistrate held his assizes, and the people used to assemble: *κρηται*, again, may come from *κρηται*, *authority, power*; because it was here the laws were made.

CURIA, in our ancient customs.—It was usual for the kings of England to summon the bishops, peers, and great men of the kingdom, to some particular place, at the chief festivals in the year; and this assembly is called by our historians *curia*; because there they consulted about the weighty affairs of the nation; whence it was sometimes also called *solemnis curia, generalis curia, augustalis curia*, and *curia publica*, &c. See WITENA-Mot.

CURIA Baronum. See COURT-BARON.

CURIA Claudenda, is a writ that lies against him who should fence and inclose the ground, but refuses or defers to do it.

CURIATII, three brothers of Alba, maintained the interest of their country against the Romans, who had declared war against those of Alba. The two armies being equal, three brothers on each side were chosen to decide the contest; the Curiatii by those of Alba, and the Horatii by the Romans. The three first were wounded, and two of the latter killed; but the third, joining policy to valour, ran away; and having thus tired the Curiatii, he took them one after another, and killed them all three.

CURING, a term used for the preserving fish, flesh, and other animal substances, by means of certain additions of things, to prevent putrefaction. One great method of doing this is by exposing the bodies to the smoke of wood, or rubbing them with salt, nitre, &c.

CURIO, the chief and priest of a curia.—Romulus, upon dividing the people into curiæ, gave each division a chief, who was to be priest of that curia, under the title of *curio* and *flamen curialis*. His business was to provide and officiate at the sacrifices of the curia, which were called *curionia*; the curia furnishing him with a sum of money on that consideration, which pension or appointment was called *curionium*. Each division had the election of its curia; but all these particular curios were under the direction of a superior or general, called *curio maximus*, who was the head of the body, and elected by all the curios assembled in the comitia curialis.

All these institutions were introduced by Romulus.

Curia
||
Curio.

Curiosus
||
Current.

lus, and confirmed by Numa, as Halicarnassus relates it.

CURIOSUS, an officer of the Roman empire during the middle age, appointed to take care that no frauds and irregularities were committed; particularly no abuses in what related to the posts, the roads, &c. and to give intelligence to the court of what passed in the provinces. This made the curiosi people of importance, and put them in a condition of doing more harm than they prevented; on which account, Honorius cashiered them, at least in some parts of the empire, *anno* 415.

The curiosi came pretty near to what we call *controllers*. They had their name from *cura*, "care;" *quod curis agendis et evectioibus cursus publici inspiciendis operam darent.*

CURLEW. See **SCOLOPAX**, *ORNITHOLOGY Index*.

CURMI, a name given by the ancients to a sort of malt liquor or ale. It was made of barley, and was drunk by the people of many nations instead of wine, according to Dioscorides's account. He accuses it of causing pains in the head, generating bad juices, and disordering the nervous system. He also says, that in the western part of Iberia, and in Britain, such a sort of liquor was in his time prepared from wheat instead of barley. See **ALE**.

CURNOCK, a measure of corn containing four bushels, or half a quarter.

CURRANS, or **CURRANTS**, the fruit of a species of grossularia. See **GROSSULARIA**, *BOTANY Index*.

The white and red sort are mostly used; for the black, and chiefly the leaves, upon first coming out, are in use to flavour English spirits, and counterfeit French brandy. Currants greatly assuage drought, cool and fortify the stomach, and help digestion; and the jelly of black currants is said to be very efficacious in curing inflammations of the throat.

CURRANTS also signify a smaller kind of grapes, brought principally from Zante and Cephalonia. They are gathered off the bushes, and laid to dry in the sun, and so put up in large butts. They are opening and pectoral; but are more used in the kitchen than in medicine.

CURRENT, or **CURRENT**, a term used to express the present time. Thus the year 1804 is the current year, the 20th current is the 20th day of the month now running.—With regard to commerce, the price current of any merchandise is the known and ordinary price accustomed to be given for it. The term is also used for any thing that has course or is received in commerce; in which sense we say, *current coin*, &c.

CURRENT, in *Navigation*, a certain progressive movement of the water of the sea, by which all bodies floating therein are compelled to alter their course or velocity, or both, and submit to the laws imposed on them by the current.

In the sea, currents are either natural and general, as arising from the diurnal rotation of the earth about its axis; or accidental and particular, caused by the waters being driven against promontories, or into gulfs and straits, where, wanting room to spread, they are driven back, and thus disturb the ordinary flux of the sea. Currents are various, and directed towards different parts of the ocean, of which some

are constant, others periodical. The most extraordinary current of the sea is that by which part of the Atlantic or African ocean moves about Guinea from Cape Verd towards the curvature or bay of Africa, which they call *Fernando Poo*; viz. from west to east, contrary to the general motion: And such is the force of the current, that when ships approach too near the shore, it carries them violently towards that bay, and deceives the mariners in their reckoning. There is a great variety of shifting currents, which do not last, but return at certain periods: and these do, most of them, depend upon and follow the anniversary winds or monsoons, which by blowing in one place may cause a current in another. Varenus informs us, that at Java, in the straits of Sunda, when the monsoons blow from the west, viz. in the month of May, the currents set to the eastward, contrary to the general motion. Between the island of Celebes and Madura, when the western monsoons set in, viz. in December, January, and February, or when the winds blow from the north-west, or between the north and west, the currents set to the south-east, or between the south and east. At Ceylon, from the middle of March to October, the currents set to the southward, and in the other parts of the year to the northward: because at this time the southern monsoons blow, and at the other the northern. Between Cochin-China and Malacca, when the western monsoons blow, viz. from April to August, the currents set eastward against the general motion; but the rest of the year they set westward, the monsoon conspiring with the general motion. They run so strongly in these seas, that unexperienced sailors mistake them for waves that beat upon the rocks, known usually by the name of *breakers*. So for some months after the 15th of February, the currents set from the Maldives towards India on the east, against the general motion of the sea. On the shore of China and Cambodia, in the months of October, November, and December, the currents set to the north-west, and from January to the south-west, when they run with such rapidity about the shoals of Parcel, that they seem swifter than an arrow. At Pulo Condore, upon the coast of Cambodia, though the monsoons are shifting, yet the currents set strongly towards the east, even when they blow to a contrary point. Along the coasts of the bay of Bengal, as far as the Cape Romania, at the extreme point of Malacca, the current runs southward in November and December. When the monsoons blow from China to Malacca, the sea runs swiftly from Pulo Cambi to Pulo Condore on the coast of Cambodia. In the bay of Sans Bras, not far from the Cape of Good Hope, there is a current particularly remarkable, where the sea runs from east to west to the landward; and this more vehemently, as it is opposed by winds from a contrary direction. The cause is undoubtedly owing to some adjacent shore which is higher than this. In the straits of Gibraltar the currents almost constantly drive to the eastward, and carry ships into the Mediterranean; they are also found to drive the same way into St George's channel.

The setting or progressive motion of the current may be either quite down to the bottom, or to a certain determinate depth. As the knowledge of the direction and velocity of currents is a very material article

Current, Curriculus. ticle in navigation, it is highly necessary to discover both, in order to ascertain the ship's situation and course with as much accuracy as possible. The most successful method which has been hitherto practised by mariners for this purpose, is as follows: A common iron-pot, which may contain four or five gallons, is suspended by a small rope, fastened to its ears or handles, so as to hang directly upright, as when placed upon the fire. This rope, which may be from 70 to 100 fathoms in length, being prepared for the experiment, is coiled in the boat, which is hoisted out of the ship at a proper opportunity, when there is little or no wind to ruffle the surface of the sea. The pot being then thrown overboard into the water, and immediately sinking, the line is slackened till about 70 or 80 fathoms of the line are run out; after which the line is fastened to the boat's stern, by which she is accordingly restrained and rides as at an anchor. The velocity of the current is then easily tried by the log and half-minute glass, the usual method of discovering the rate of a ship's sailing at sea. The course of the stream is next obtained by the compass provided for this operation. Having thus found the setting and drift of the current, it next remains to apply this experiment to the purposes of NAVIGATION; for which see that article.

Under-CURRENTS, are distinct from the upper or apparent, and in different places set or drive a contrary way. Dr Smith makes it highly probable, that in the Downs, in the straits of Gibraltar, &c. there is an under-current, whereby as much water is carried out as is brought in by the upper currents. This he argues from the offing between the north and south Foreland, where it runs tide and half-tide, i. e. it is ebb or flood in that part of the Downs three hours before it is so off at sea: a certain sign, that though the tide of flood runs aloft, yet the tide of ebb runs under-foot, i. e. close by the ground; and so at the tide of ebb it will flow under foot. This he confirms by an experiment in the Baltic sound, communicated to him by an able seaman present at the making it. Being there then with one of the king's frigates, they went with their pinnace into the mid stream, and were carried violently by the current. Soon after that, they sunk a basket with a large cannon bullet to a certain depth of water, which gave a check to the boat's motion; and sinking it still lower and lower, the boat was driven a-head to the windward against the upper current, the current aloft not being above four or five fathom deep. He added, that the lower the basket was let down, the stronger the under-current was found.

From this principle, it is easy to account for that continual indraught of water out of the Atlantic into the Mediterranean through the straits of Gibraltar, a passage about 20 miles broad; yet without any sensible rising of the water along the coasts of Barbary, &c. or any overflowing of the land, which there lies very low.—Dr Halley, however, solves the currents setting in at the straits without overflowing the banks, by the great evaporation, without supposing any under current.

CURRICULUS, in our ancient writers, denotes the year or course of a year. *Actum est hoc annorum Dominice incarnationis quater quinquagenis et quinques*

quis lustris, et tribus curriculis: i. e. In the year 1028; for four times fifty make two hundred, and five times two hundred make one thousand; five lustris are twenty-five years, and three curriculi are three years.

CURRIERS, those who dress and colour leather after it comes from the tan-yard. See TANNING.

CURRODREPANUS (formed of *currus*, "chariot," and *δρεπανον* "scythe" or "sickle"), in antiquity, a kind of chariot armed with scythes. The driver of these chariots was obliged to ride on one of the horses, as there was no other seat for him; the usual place for him being all armed with knives, as was likewise the hinder part of the chariot. There were no scythes pointing down to the earth, either from the beam or axle-tree; but these were fixed at the head of the axle-tree in such a manner as to be moveable by means of a rope, and thereby could be raised or let down, and drawn forward or let fall backward, by relaxing the rope.

CURRYING, the method of preparing leather with oil, tallow, &c.

The chief business is to soften and supple cow and calve-skins, which make the upper leather and quarters of shoes, covering of saddles, coaches, and other things which must keep out water. 1. These skins, after coming from the tanner's yard, having many fleshy fibres on them, the currier soaks them some time in common water. 2. He takes them out, and stretches them on a very even wooden horse; then with a paring knife he scrapes off all the superfluous flesh, and puts them in to soak again. 3. He puts them wet on a hurdle, and tramples them with his heels till they begin to grow soft and pliant. 4. He soaks thereon train-oil, which by its unctuous quality is the best liquor for this purpose. 5. He spreads them on large tables, and fastens them at the ends. There, with the help of an instrument called a *pummel*, which is a thick piece of wood, the under side of which is full of furrows crossing each other, he folds, squares, and moves them forwards and backwards several times, under the teeth of this instrument, which breaks their too great stiffness. This is what is properly called *currying*. The order and number of these operations is varied by different carriers, but the material part is always the same. 6. After the skins are curried, there may be occasion to colour them. The colours are black, white, red, yellow, green, &c. the other colours are given by the skinners, who differ from carriers in this, that they apply their colours on the flesh side; the carriers on the hair side. In order to whiten skins, they are rubbed with lumps of chalk or white lead, and afterwards with pumice-stone. 7. When a skin is to be made black, after having oiled and dried it, he passes over it a puff dipt in water impregnated with iron; and after his first wetting, he gives it another in a water prepared with foot, vinegar, and gum-arabic. These different dyes gradually turn the skin black, and the operations are repeated till it be of a shining black. The grain and wrinkles, which contribute to the suppleness of calves and cows leather, are made by the reiterated folds given to the skin in every direction, and by the care taken to scrape off all hard parts on the colour side.

CURSING AND SWEARING, an offence against God and religion, and a sin of all others the most extravagant

Carriers
||
Cursing and
Swearing.

Curfitor
||
Curtius.

travagant and unaccountable, as having, no benefit or advantage attending it. By the last statute against this crime, 19 George II. which repeals all former ones, every labourer, sailor, or soldier, profanely cursing or swearing, shall forfeit 1s.; every other person under the rank of a gentleman, 2s.; and every gentleman or person of superior rank, 5s. to the poor of the parish; and, on a second conviction, double: and, for every subsequent offence, treble the sum first forfeited, with all charges of conviction: and, in default of payment, shall be sent to the house of correction for ten days. Any justice of the peace may convict upon his own hearing, or the testimony of one witness; and any constable or peace officer, upon his own hearing, may secure any offender, and carry him before a justice, and there convict him. If the justice omits his duty, he forfeits 5l. and the constable 40s. And the act is to be read in all parish churches, and public chapels, the Sunday after every quarter day, on pain of 5l. to be levied by warrant from any justice. Besides this punishment for taking God's name in vain in common discourse, it is enacted, by stat. 3. Jac. I. c. 21. that if in any stage-play, interlude, or show, the name of the Holy Trinity, or any of the persons therein, be jestingly or profanely used, the offender shall forfeit 10l. one moiety to the king, and the other to the informer.

CURSITOR, a clerk belonging to the court of chancery, whose business it is to make out original writs. In the statute 18 Edw. III. they are called *clerks of course*, and are 24 in number, making a corporation of themselves. To each of them is allowed a division of certain counties, into which they issue out the original writs required by the subject.

CURTATE DISTANCE, in *Astronomy*, the distance of a planet from the sun to that point, where a perpendicular let fall from the planet meets with the ecliptic.

CURTATION, in *Astronomy*, is the interval between a planet's distance from the sun and the curtate distance.

CURTEYN, (*Curtana*), was the name of Edward the Confessor's sword, which is the first sword carried before the kings of England at their coronation; and it is said the point of it is broken as an emblem of mercy.

CURTIN, **CURTAIN**, or *Courtin*, in *Fortification*, is that part of the rampart of a place which is betwixt the flanks of two bastions, bordered with a parapet five feet high, behind which the soldiers stand to fire upon the covered way and into the moat.

CURTIUS, **MARCUS**, a Roman youth, who devoted himself to the gods manes for the safety of his country, about 360 years before the Augustan age. A wide gap had suddenly opened in the forum, and the oracle had said that it never would close before Rome threw into it whatever it had most precious. Curtius immediately perceived that no less than a human sacrifice was required. He armed himself, mounted his horse, and solemnly threw himself into the gulf, which instantly closed over his head.

CURTIUS, *Quintus*, a Latin historian who wrote the life of Alexander the Great in 10 books, of which the two first are not indeed extant, but are so well supplied by Freinshemius, that the loss is scarcely regretted. Where this writer was born, or even when

he lived, are points no one pretends to know. By his style he is supposed to have lived in or near the Augustan age; while some are not wanting, who imagine the work to have been composed in Italy about 300 years ago, and the name of *Quintus Curtius* to be fictitiously added to it. Cardinal du Perron was so great an admirer of this work, as to declare one page of it to be worth 30 of Tacitus; yet M. le Clerc, at the end of his Art of Criticism, has charged the writer with great ignorance and many contradictions. He has nevertheless many qualities as a writer, which will always make him admired and applauded.

CURVATURE OF A LINE, is the peculiar manner of its bending or flexure, by which it becomes a curve of any form and properties. Thus the nature of the curvature of a circle is such, as that every point in the periphery is equally distant from a point within, called the centre; and so the curvature of the same circle is everywhere the same. But the curvature in all other curves is continually varying.

CURVE, in *Geometry*, a line which running on continually in all directions, may be cut by one right line in more points than one. See **CONIC SECTIONS** and **FLUXIONS**.

CURVE of Equable Approach. Leibnitz first proposed to find a curve, down which a body descending by the force of gravity, shall make equal approaches to the horizon in equal portions of time. This curve, as it has been found by Bernoulli and others, is the second cubical parabola placed with its vertex uppermost, and which the descending body must enter with a certain determinate velocity. The question was rendered general by Varignon for any law of gravity, by which a body may approach towards a given point by equal spaces in equal times. Maupertuis also resolved the problem in the case of a body descending in a medium whose resistance is as the square of the velocity.

CURVES, *Algebraical* or *Geometrical*, are those in which the relation of the abscissæ to the ordinates can be expressed by a common algebraic equation.

CURVES, *Transcendental* or *Mechanical*, are those which cannot be defined or expressed by an algebraic equation.

CURVET, or **CORVET**, in the manege, an air in which the horse's legs are raised higher than in the demi-volt; being a kind of leap up, and a little forwards, wherein the horse raises both his fore-legs at once, equally advanced, (when he is going straight forward, and not in a circle); and as his fore legs are falling, he immediately raises his hind legs, equally advanced, and not one before the other: so that all his four legs are in the air at once; and as he sets them down, he marks but twice with them.

CURVILINEAR, or **CURVILINEAL**, is said of figures bounded by curves or crooked lines.

CURVIROSTRA. See **LOXIA**, **ORNITHOLOGY** *Index*.

CURULE CHAIR, in Roman antiquity, a chair adorned with ivory, wherein the great magistrates of Rome had a right to sit and be carried.

The curule magistrates were the ædiles, the prætors, censors, and consuls. This chair was fitted in a kind of chariot, whence it had its name. The senators who had borne the offices of ædiles, prætors, &c. were carried to the senate-house in this chair, as were also

Curvature
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Curule.

Curzola
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Cush

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Cuspinian.

also those who triumphed, and such as went to administer justice, &c. See *ÆDILE*, &c.

CURZOLA, an island in the gulf of Venice, lying on the coast of Dalmatia. It is about 20 miles long, and has a small town of the same name, with a bishop's see. It belongs to the Venetians. E. Long. 17. 15. N. Lat. 43. 6.

CUSA, **NICHOLAS DE**, a learned cardinal, born of mean parentage, and named from Cusa, the place of his birth. He was made a cardinal in 1448; and being appointed governor of Rome by Pope Pius II. during his absence at Mantua, he was the chief conductor and manager of the war against the Turks. He founded a church, and a noble library of Greek and Latin authors, at Cusa; and left many excellent works behind him, which were collected and published in three volumes at Basil in 1565. In these he has made no scruple to detect the lying traditions and sophistries of the Roman church.

CUSCO, a large and handsome town of South America in Peru, formerly the residence of the Incas. It is seated at the foot of a mountain, and is built in a square form, in the middle of which there is the best market in all America. Four large streets terminate in this square, which are all as straight as a line, and regard the four quarters of the world. The Spaniards tell us wonderful things of the richness of the Inca's palace, and of the temple of the sun; but more sober travellers, judging from what remains, think most of them to be fabulous. At present it contains eight large parishes, and five religious houses, the best of which belongs to the Jesuits; and the number of the inhabitants may be about 50,000, of which three fourths are the original natives, Americans. From this town there is a very long road, which runs along the Cordilleras; and, at certain distances, there are small houses for resting places, some parts of which are so artificially wrought, that it is surprising how a people who had no iron tools could perform such workmanship. There are streams of water run through the town, which are a great convenience in so hot a country where it never rains. It is 375 miles east of Lima. W. Long. 74. 37. S. Lat. 13. 0.

CUSCUTA, **DODDER**; a genus of plants belonging to the tetrandria class; and in the natural method ranking under those of which the order is doubtful. See *BOTANY Index*.

CUSH, the eldest son of Ham, and father of Nimrod; the other sons of Cush were Seba, Havilah, Sabtah, Raamah, and Sabtecha. Gen. x. 6—8. Though we know of no other person of Scripture that is called by this name, yet there are several countries that are called by it; whether the same man may have dwelt in them all at different times, or that there were some other men of this name, we are ignorant.

The Vulgate, Septuagint, and other interpreters, both ancient and modern, generally translate Cush, *Ethiopia*: but there are many passages wherein this translation cannot take place.

CUSH is the name of the country watered by the Araxes. They who in translating the situation of Eden, have made *Cush* Ethiopia, gave rise to that unwarrantable opinion which Josephus and several others have entertained of the river Gihon's being the

Nile. In this place (Gen. ii. 13.) the LXX translation renders the word *Cush* by the name of Ethiopia; and in this mistake, is not only here followed by our English version, but in the same particular in several other places.

Cush is the same as Cush. The Chaldees generally put the *tau* where the Hebrews use the *schin*: they say *cuth*, instead of *cush*. See *CUTH*.

But Ethiopia is frequently in the Hebrew called *Cush*; and Josephus says, that they called themselves by this name, and that the same name was given them by all Asia. St Jerome tells us that the Hebrews call the Ethiopians by the same name, and the Septuagint give them no other. Jeremiah (xiii. 23.) says, "Can the Cushæan, or Ethiopian, change his colour?" In Ezekiel (xxix. 10.) the Lord threatens to reduce "Egypt to a desert, from the tower of Syene even unto the border of Cush, or Ethiopia;" and in Isaiah, (xi. 11.) he says, "he will recover the remnant of his people, which shall be left, from Assyria, and from Egypt, and Pathros, and from Cush." All these marks agree with Ethiopia properly so called, which lies to the south of Egypt.

Bochart has shown very clearly that there was a country called the "land of *Cush*" in Arabia Petraea, bordering upon Egypt; that this country extended itself principally upon the eastern shore of the Red sea, and at its extremity to the point of the sea, inclining towards Egypt and Palestine.

Thus there are three countries of the name of Cush, described in Scripture, and all confounded by interpreters under the general name of Ethiopia.

CUSHION, in engraving, is a bag of leather filled with sand, commonly about nine inches square, and three or four thick, used for supporting the plate to be engraved.

CUSHION, in gilding, is made of leather, fastened to a square board, from 14 inches square to 10, with a handle. The vacuity between the leather and board is stuffed with fine tow or wool, so that the outer surface may be flat and even. It is used for receiving the leaves of gold from the paper, in order to its being cut into proper sizes and figures.

CUSI, in *Natural History*, a name given by the people of the Philippine islands to a very small and very beautiful species of parrot.

CUSP, (*cuspis*,) properly denotes the point of a spear or sword: but is used in astronomy to express the points or horns of the moon, or any other luminary.

CUSP, in *Astrology*, is used for the first point of each of the 12 houses, in a figure or scheme of the heavens. See *HOUSE*.

CUSPIDATED, in *Botany*, are such plants whose leaves are pointed like a spear.

CUSPINIAN, **JOHN**, a German, was born at Sweinfurt in 1473, and died at Vienna in 1529. He was first physician to the emperor Maximilian I. and employed by that prince in several delicate negotiations. We have of his in Latin, 1. A history of the Roman emperors from Julius Cæsar to the death of Maximilian I. Degory Wheare, in his *Methodus Legendæ Historiæ*, calls this "luculentum sane opus, et omnium lectione dignissimum." 2. A history of Austria; being a kind of continuation of the preceding. 3. A history of

Custom
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Custom
and Habit.

of the origin of the Turks, and of their cruelties towards Christians. Gerard Vossius calls Cuspinian *magnum suæ ævo historie lumen*.

CUSSO, the name given by the natives to a tree which is indigenous to the high country of Abyssinia. It is particularly described by Mr Bruce; but as this celebrated traveller was totally unacquainted with the language of botany, it is impossible to discover to what class, order, or genus, it belongs. It grows nearly to the height of 20 feet, and the seed is employed by the Abyssinians as a vermifuge. From the figure which Mr Bruce has given of this plant, it would appear to be most nearly allied to the palms.

CUSTOM, a very comprehensive term, denoting the manners, ceremonies, and fashions of a people, which having turned into a habit, and passed into use, obtain the force of laws; in which sense it implies such usages, as, though voluntary at first, are yet by practice become necessary.

Custom is hence, both by lawyers and civilians, defined *lex non scripta*, "a law or right not written," established by long usage, and the consent of our ancestors: in which sense it stands opposed to the *lex scripta*, or "the written law." See *LAW INDEX*.

Custom and Habit, in the human economy. The former is often confounded with the latter. By *custom* we mean a frequent reiteration of the same act; and by *habit*, the effect that custom has on the mind or body. This curious subject falls to be considered first in the moral, and secondly in a physical, light.

I. *Influence of Custom and Habit on the Mind, &c.* Custom hath such influence upon many of our feelings, by warping and varying them, that its operations demand the attention of all those who would be acquainted with human nature. The subject, however, is intricate. Some pleasures are fortified by custom: and yet custom begets familiarity, and consequently indifference:

If all the year were playing holidays,
To sport would be as tedious as to work:
But when they seldom come, they wish'd-for come,
And nothing pleaseth but rare accidents. *Shakespeare.*

In many instances, satiety and disgust are the consequences of reiteration: again, though custom blunts the edge of distress and of pain; yet the want of any thing to which we have been long accustomed is a sort of torture. A clue to guide us through all the intricacies of this labyrinth, would be an acceptable present.

Whatever be the cause, it is certain that we are much influenced by custom: it hath an effect upon our pleasures, upon our actions, and even upon our thoughts and sentiments. Habit makes no figure during the vivacity of youth: in middle age it gains ground; and in old age governs without controul. In that period of life, generally speaking, we eat at a certain hour, take exercise at a certain hour, go to rest at a certain hour, all by the direction of Habit; nay, a particular seat, table, bed, comes to be essential; and a habit in any of these cannot be controuled without uneasiness.

Any slight or moderate pleasure, frequently reiterated for a long time, forms a peculiar connexion between us and the thing that causes the pleasure. This connexion, termed *habit*, has the effect to awaken our

desire or appetite for that thing when it returns not as usual. During the course of enjoyment, the pleasure rises insensibly higher and higher till a habit be established; at which time the pleasure is at its height. It continues not, however, stationary: the same customary reiteration which carried it to its height, brings it down again by insensible degrees, even lower than it was at first; but of that circumstance afterwards. What at present we have in view, is to prove by experiments, that those things which at first are but moderately agreeable, are the aptest to become habitual. Spirituous liquors, at first scarce agreeable, readily produce a habitual appetite: and custom prevails so far, as even to make us fond of things originally disagreeable, such as coffee, assa-foetida, and tobacco.

A walk upon the quarter deck, though intolerably confined, becomes however so agreeable by custom, that a sailor in his walk on shore confines himself commonly within the same bounds. The author knew a man who had relinquished the sea for a country life: in the corner of his garden, he reared an artificial mount with a level summit, resembling most accurately a quarter-deck, not only in shape but in size; and here he generally walked. In Minorca Governor Kane made an excellent road the whole length of the island: and yet the inhabitants adhere to the old road, though not only longer, but extremely bad. Play or gaming, at first barely amusing, by the occupation it affords, becomes in time extremely agreeable; and is frequently prosecuted with avidity, as if it were the chief business of life. The same observation is applicable to the pleasures of the internal senses, those of knowledge and virtue in particular: children have scarce any sense of these pleasures; and men very little who are in the state of nature without culture: our taste for virtue and knowledge improves slowly: but is capable of growing stronger than any other appetite in human nature.

To introduce an active habit, frequency of acts is not sufficient without length of time: the quickest succession of acts in a short time is not sufficient; nor a slow succession in the longest time. The effect must be produced by a moderate soft action, and a long series of easy touches, removed from each other by short intervals. Nor are these sufficient without regularity in the time, place, and other circumstances of the action; the more uniform any operation is, the sooner it becomes habitual. And this holds equally in a passive habit; variety, in any remarkable degree, prevents the effect; thus any particular food will scarce ever become habitual where the manner of dressing is varied. The circumstances then requisite to augment a moderate pleasure, and at the long-run to form a habit, are weak uniform acts, reiterated during a long course of time, without any considerable interruption: every agreeable cause that operates in this manner will grow habitual.

Affection and aversion, as distinguished from passion on the one hand, and on the other from original disposition, are in reality habits respecting particular objects, acquired in the manner above set forth. The pleasure of social intercourse with any person must originally be faint, and frequently reiterated, in order to establish the habit of affection. Affection thus generated,

Custom
and Habit.

Kames's
Elements of
Criticism.

Custom
and Habit.

nerated, whether it be friendship or love, seldom swells into any tumultuous or vigorous passion; but it is however the strongest cement that can bind together two individuals of the human species. In like manner, a slight degree of disgust often reiterated with regularity, grows into the habit of aversion, which commonly subsists for life.

Objects of taste that are delicious, far from tending to become habitual, are apt by indulgence to produce satiety and disgust: no man contracts a habit of using sugar, honey, or sweet meats, as he does tobacco.

These violent delights have violent ends,
And in their triumphs die. The sweetest honey
Is loathsome in its own deliciousness,
And in the taste confounds the appetite;
Therefore love moderately, long love doth so;
Too swift arrives as tardy as too slow.

Romeo and Juliet, Act ii. sc. 6.

The same observation holds with respect to all objects which being extremely agreeable raise violent passions: such passions are incompatible with a habit of any kind: and in particular they never produce affection or aversion: a man who at first sight falls violently in love, has a strong desire of enjoyment, but no affection for the woman (A): a man who is surprised with an unexpected favour, burns for an opportunity to exert his gratitude, without having any affection for his benefactor: neither does desire of vengeance for an atrocious injury involve aversion.

It is perhaps not easy to say why moderate pleasures gather strength by custom: but two causes concur to prevent that effect in the more intense pleasures. These, by an original law in our nature, increase quickly to their full growth, and decay with no less precipitation: and custom is too slow in its operation to overcome that law. The other cause is not less powerful: exquisite pleasure is extremely fatiguing; occasioning, as a naturalist would say, great expence of animal spirits; and of such the mind cannot bear so frequent gratification, as to superinduce a habit: if the thing that raises the pleasure return before the mind

VOL. VII. Part I.

Custom
and Habit.

have recovered its tone and relish, disgust ensues instead of pleasure.

A habit never fails to admonish us of the wanted time of gratification, by raising a pain for want of the object, and a desire to have it. The pain of want is always first felt; the desire naturally follows; and upon presenting the object, both vanish instantaneously. Thus a man accustomed to tobacco, feels, at the end of the usual interval, a confused pain of want; which at first points at nothing in particular, though it soon settles upon its accustomed object: and the same may be observed in persons addicted to drinking, who are often in an uneasy restless state before they think of the bottle. In pleasures indulged regularly, and at equal intervals, the appetite, remarkably obsequious to custom, returns regularly with the usual time of gratification; not sooner, even though the object be presented. This pain of want arising from habit, seems directly opposite to that of satiety; and it must appear singular, that frequency of gratification should produce effects so opposite, as are the pains of excess and of want.

The appetites that respect the preservation and propagation of our species, are attended with a pain of want similar to that occasioned by habit: hunger and thirst are uneasy sensations of want, which always precede the desire of eating or drinking; and a pain for want of carnal enjoyment precedes the desire of an object. The pain being thus felt independent of an object, cannot be cured but by gratification. Very different is an ordinary passion, in which desire precedes the pain of want: such a passion cannot exist but while the object is in view; and therefore, by removing the object out of thought, it vanisheth with its desire and pain of want.

The natural appetites above mentioned, differ from habit in the following particular: they have an undetermined direction toward all objects of gratification in general; whereas an habitual appetite is directed to a particular object: the attachment we have by habit to a particular woman, differs widely from the natural passion which comprehends the whole sex; and

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(A) Violent love, without affection, is finely exemplified in the following story. When Constantinople was taken by the Turks, Irene, a young Greek of an illustrious family, fell into the hands of Mahomet II. who was at that time in the prime of youth and glory. His savage heart being subdued by her charms, he shut himself up with her, denying access even to his ministers. Love obtained such ascendant as to make him frequently abandon the army, and fly to his Irene. War relaxed, for victory was no longer the monarch's favourite passion. The soldiers, accustomed to booty, began to murmur, and the infection spread even among the commanders. The Basha Mustapha, consulting the fidelity he owed his master, was the first who durst acquaint him of the discourses held publicly to the prejudice of his glory. The sultan, after a gloomy silence, formed his resolution. He ordered Mustapha to assemble the troops next morning; and then with precipitation retired to Irene's apartment. Never before did that prince's appear so charming; never before did the prince bestow so many warm caresses. To give a new lustre to her beauty, he exhorted her women next morning to bestow their utmost art and care on her dress. He took her by the hand, led her into the middle of the army, and pulling off her veil, demanded of the bashas with a fierce look, whether they had ever beheld such a beauty? After an awful pause, Mahomet with one hand laying hold of the young Greek by her beautiful locks, and with the other pulling out his scimitar, severed the head from the body at one stroke. Then turning to his grandees, with eyes wild and furious, "This sword (says he), when it is my will, knows to cut the bands of love." However strange it may appear, we learn from experience, that desire of enjoyment may consist with the most brutal aversion, directed both to the same woman. Of this we have a noted example in the first book of Sully's Memoirs; to which we refer the reader.

Custom
and Habit.

the habitual relish for a particular dish, is far from being the same with a vague appetite for food. That difference notwithstanding, it is still remarkable, that nature hath enforced the gratification of certain natural appetites essential to the species, by a pain of the same sort with that which habit produceth.

The pain of habit is less under our power than any other pain that arises from want of gratification: hunger and thirst are more easily endured, especially at first, than an unusual intermission of any habitual pleasure: persons are often heard declaring, they would forego sleep or food, rather than tobacco. We must not, however, conclude, that the gratification of an habitual appetite affords the same delight with the gratification of one that is natural: far from it; the pain of want only is greater.

The slow and reiterated acts that produce a habit, strengthen the mind to enjoy the habitual pleasure in greater quantity and more frequency than originally; and by that means a habit of intemperate gratification is often formed: after unbounded acts of intemperance, the habitual relish is soon restored, and the pain for want of enjoyment returns with fresh vigour.

The causes of the present emotions hitherto in view, are either an individual, such as a companion, a certain dwelling-place, a certain amusement; or a particular species, such as coffee, mutton, or any other food. But habit is not confined to such. A constant train of trifling diversions may form such a habit in the mind, that it cannot be easy a moment without amusement: a variety in the objects prevents a habit as to any one in particular: but as the train is uniform with respect to amusement, the habit is formed accordingly; and that sort of habit may be denominated a *generic habit*, in opposition to the former, which is a *specific habit*. A habit of a town-life, of country-sports, of solitude, of reading, or of business, where sufficiently varied, are instances of generic habits. Every specific habit hath a mixture of the generic; for the habit of any one sort of food makes the taste agreeable, and we are fond of that taste wherever found. Thus a man deprived of an habitual object, takes up with what most resembles it; deprived of tobacco, any bitter herb will do rather than want; a habit of punch makes wine a good resource: accustomed to the sweet society and comforts of matrimony, the man unhappily deprived of his beloved object, inclines the sooner to a second. In general, when we are deprived of a habitual object, we are fond of its qualities in any other object.

The reasons are assigned above, why the causes of intense pleasure become not readily habitual: but now we discover, that these reasons conclude only against specific habits. In the case of a weak pleasure, a habit is formed by frequency and uniformity of reiteration, which, in the case of an intense pleasure, produceth satiety and disgust. But it is remarkable, that satiety and disgust have no effect, except as to that thing singly which occasions them; a surfeit of honey produceth not a loathing of sugar; and intemperance with one woman produceth no disrelish of the same pleasure with others. Hence it is easy to account for a generic habit in any intense pleasure: the delight we had in the gratification of the appetite, inflames the imagination, and makes us search, with avidity,

for the same gratification in whatever other object it can be found. And thus uniform frequency in gratifying the same passion upon different objects, produceth at length a generic habit. In this manner one acquires an habitual delight in high and poignant sauces, rich dress, fine equipages, crowds of company, and in whatever is commonly termed *pleasure*. There concurs, at the same time, to introduce this habit, a peculiarity observed above, that reiteration of acts enlarges the capacity of the mind to admit a more plentiful gratification than originally, with regard to frequency, as well as quantity.

Hence it appears, that though a specific habit cannot be formed but upon a moderate pleasure, a generic habit may be formed upon any sort of pleasure, moderate or immoderate, that hath variety of objects. The only difference is, that a weak pleasure runs naturally into a specific habit; whereas an intense pleasure is altogether averse to such a habit. In a word, it is only in singular cases that a moderate pleasure produces a generic habit; but an intense pleasure cannot produce any other habit.

The appetites that respect the preservation and propagation of the species, are formed into habit in a peculiar manner; the time as well as measure of their gratification is much under the power of custom; which, introducing a change upon the body, occasions a proportional change in the appetites. Thus, if the body be gradually formed to a certain quantity of food at stated times, the appetite is regulated accordingly; and the appetite is again changed, when a different habit of body is introduced by a different practice. Here it would seem, that the change is not made upon the mind, which is commonly the case in passive habits, but upon the body.

When rich food is brought down by ingredients of a plainer taste, the composition is susceptible of a specific habit. Thus the sweet taste of sugar, rendered less poignant in a mixture, may, in course of time, produce a specific habit for such mixture. As moderate pleasures, by becoming more intense, tend to generic habits; so intense pleasures, by becoming more moderate, tend to specific habits.

The beauty of the human figure, by a special recommendation of nature, appears to us supreme, amid the great variety of beautiful forms bestowed upon animals. The various degrees in which individuals enjoy that property, render it an object sometimes of a moderate, sometimes of an intense, passion. The moderate passion, admitting frequent reiteration without diminution, and occupying the mind without exhausting it, turns gradually stronger till it becomes a habit. Nay, instances are not wanting, of a face at first disagreeable, afterwards rendered indifferent by familiarity, and at length agreeable by custom. On the other hand, consummate beauty, at the very first glance, fills the mind so as to admit no increase. Enjoyment lessens the pleasure; and if often repeated, ends commonly in satiety and disgust. The impressions made by consummate beauty, in a gradual succession from lively to faint, constitute a series opposite to that of faint impressions waxing gradually more lively, till they produce a specific habit. But the mind when accustomed to beauty contracts a relish for it in general, though often repelled from particular objects
by

Custom
and Habit.

Custom
and Habit.

by the pain of satiety; and thus a generic habit is formed, of which inconstancy in love is the necessary consequence; for a generic habit, comprehending every beautiful object, is an invincible obstruction to a specific habit, which is confined to one.

But a matter which is of great importance to the youth of both sexes, deserves more than a cursory view. Though the pleasant emotion of beauty differs widely from the corporeal appetite, yet when both are directed to the same object, they produce a very strong complex passion; enjoyment in that case must be exquisite; and therefore more apt to produce satiety than in any other case whatever. This is a never-failing effect, where consummate beauty in the one party, meets with a warm imagination and great sensibility in the other. What we are here explaining, is true without exaggeration; and they must be insensible upon whom it makes no impression: it deserves well to be pondered by the young and the amorous, who, in forming the matrimonial society, are too often blindly impelled by the animal pleasure merely, inflamed by beauty. It may indeed happen, after the pleasure is gone, and go it must with a swift pace, that a new connexion is formed upon more dignified and more lasting principles: but this is a dangerous experiment; for even supposing good sense, good temper, and internal merit of every sort, yet a new connexion upon such qualifications is rarely formed: it commonly, or rather always happens, that such qualifications, the only solid foundation of an indissoluble connexion, are rendered altogether invisible by satiety of enjoyment creating disgust.

One effect of custom, different from any that have been explained, must not be omitted, because it makes a great figure in human nature: though custom augments moderate pleasures, and lessens those that are intense, it has a different effect with respect to pain; for it blunts the edge of every sort of pain and distress, faint or acute. Uninterrupted misery, therefore, is attended with one good effect: if its torments be incessant, custom hardens us to bear them.

The changes made in forming habits are curious. Moderate pleasures are augmented gradually by reiteration, till they become habitual; and then are at their height: but they are not long stationary: for from that point they gradually decay, till they vanish altogether. The pain occasioned by want of gratification runs a different course: it increases uniformly; and at last becomes extreme, when the pleasure of gratification is reduced to nothing.

It so falls out,

That what we have we prize not to the worth,
While we enjoy it; but being lack'd and lost,
Why then we rack the value; then we find
The virtue that possession would not show us
Whilst it was ours.

Much ado about Nothing, Act iv. sc. 2.

The effect of custom with relation to a specific habit is displayed through all its varieties in the use of tobacco. The taste of that plant is at first extremely unpleasant: our disgust lessens gradually till it vanishes altogether; at which period the taste is neither agreeable nor disagreeable: continuing the use of the plant, we begin to relish it; and our relish improves by use,

Custom
and Habit.

till it arrive at perfection: from that period it gradually decays, while the habit is in a state of increment, and consequently the pain of want. The result is, that when the habit has acquired its greatest vigour, the relish is gone; and accordingly we often smoke and take snuff habitually, without so much as being conscious of the operation. We must expect gratification after the pain of want; the pleasure of which gratification is the greatest when the habit is the most vigorous: it is of the same kind with the pleasure one feels upon being delivered from the rack. This pleasure, however, is but occasionally the effect of habit; and, however exquisite, is avoided as much as possible because of the pain that precedes it.

With regard to the pain of want, we can discover no difference between a generic and a specific habit; but these habits differ widely with respect to the positive pleasure. We have had occasion to observe, that the pleasure of a specific habit decays gradually till it turns imperceptible: the pleasure of a generic habit, on the contrary, being supported by variety of gratification, suffers little or no decay after it comes to its height. However it may be with other generic habits, the observation certainly holds with respect to the pleasures of virtue and of knowledge: the pleasure of doing good has an unbounded scope, and may be so variously gratified that it can never decay: science is equally unbounded; our appetite for knowledge having an ample range of gratification, where discoveries are recommended by novelty, by variety, by utility, or by all of them.

In this intricate inquiry, we have endeavoured, but without success, to discover by what particular means it is that custom hath influence upon us: and now nothing seems left, but to hold our nature to be so framed as to be susceptible of such influence. And supposing it purposely so framed, it will not be difficult to find out several important final causes. That the power of custom is a happy contrivance for our good, cannot have escaped any one who reflects, that business is our province, and pleasure our relaxation only. Now satiety is necessary to check exquisite pleasures, which otherwise would engross the mind, and unqualify us for business. On the other hand, as business is sometimes painful, and is never pleasant beyond moderation, the habitual increase of moderate pleasure, and the conversion of pain into pleasure, are admirably contrived for disappointing the malice of fortune, and for reconciling us to whatever course of life may be our lot:

How use doth breed a habit in a man!

This shadowy desert, unfrequented woods,
I better brook than flourishing peopled towns.
Here I can sit alone, unseen of any,
And to the nightingale's complaining notes
Tune my distresses, and record my woes.

Two Gentlemen of Verona, Act v. sc. 4.

As the foregoing distinctions between intense and moderate, hold in pleasure only, every degree of pain being softened by time, custom is a catholicon for pain and distress of every sort; and of that regulation the final cause requires no illustration.

Another final cause of custom will be highly relished by every person of humanity, and yet has in a great measure

Custom
and Habit.

measure been overlooked; which is, that custom hath a greater influence than any other known cause, to put the rich and the poor upon a level; weak pleasures, the share of the latter, become fortunately stronger by custom; while voluptuous pleasures, the share of the former, are continually losing ground by satiety. Men of fortune, who possess palaces, sumptuous gardens, rich fields, enjoy them less than passengers do. The goods of Fortune are not unequally distributed; the opulent possess what others enjoy.

And indeed, if it be the effect of habit, to produce the pain of want in a high degree while there is little pleasure in enjoyment, a voluptuous life is of all the least to be envied. Those who are habituated to high feeding, easy vehicles, rich furniture, a crowd of valets, much deference and flattery, enjoy but a small share of happiness, while they are exposed to manifold distresses. To such a man, enslaved by ease and luxury, even the petty inconveniences in travelling, of a rough road, bad weather, or homely fare, are serious evils: he loses his tone of mind, turns peevish, and would wreak his resentment even upon the common accidents of life. Better far to use the goods of Fortune with moderation: a man who by temperance and activity hath acquired a hardy constitution, is, on the one hand, guarded against external accidents; and, on the other, is provided with great variety of enjoyment ever at command.

We shall close this branch of the subject with an article more delicate than abstruse, viz. what authority custom ought to have over our taste in the fine arts. One particular is certain, that we cheerfully abandon to the authority of custom things that nature hath left indifferent. It is custom, not nature, that hath established a difference between the right hand and the left, so as to make it awkward and disagreeable to use the left where the right is commonly used. The various colours, though they affect us differently, are all of them agreeable in their purity: but custom has regulated that matter in another manner; a black skin upon a human being, is to us disagreeable; and a white skin probably not less so to a negro. Thus things, originally indifferent, become agreeable or disagreeable by the force of custom. Nor will this be surprising after the discovery made above, that the original agreeableness or disagreeableness of an object is, by the influence of custom, often converted into the opposite quality.

Proceeding to matters of taste, where there is naturally a preference of one thing before another; it is certain, in the first place, that our faint and more delicate feelings are readily susceptible of a bias from custom; and therefore that it is no proof of a defective taste, to find these in some measure influenced by custom; dress and the modes of external behaviour are regulated by custom in every country; the deep red or vermilion with which the ladies in France cover their cheeks, appears to them beautiful in spite of nature; and strangers cannot altogether be justified in condemning that practice, considering the lawful authority of custom, or of the fashion, as it is called: it is told of the people who inhabit the skirts of the Alps facing the north, that the swelling they universally have in the neck is to them agreeable. So far has custom power to change the nature of things,

and to make an object originally disagreeable take on an opposite appearance.

But as to every particular that can be denominated proper or improper, right or wrong, custom has little authority, and ought to have none. The principle of duty takes naturally place of every other; and it argues a shameful weakness or degeneracy of mind, to find it in any case so far subdued as to submit to custom.

II. *Effects of Custom and Habit in the Animal Economy.* These may be reduced to five heads: 1. On the simple solids. 2. On the organs of sense. 3. On the moving power. 4. On the whole nervous power. 5. On the system of blood-vessels.

1. *Effects on the Simple Solids.* Custom determines the degree of flexibility of which they are capable. By frequently repeated flexion, the several particles of which these solids consist are rendered more supple and moveable on each other. A piece of catgut, e. g. when on the stretch, and having a weight appended to its middle, will be bended thereby perhaps half an inch; afterwards, by frequent repetitions of the same weight, or by increasing the weight, the flexibility will be rendered double. The degree of flexibility has a great effect in determining the degree of oscillation, provided that elasticity is not affected; if it go beyond this, it produces flaccidity. Again, custom determines the degree of tension; for the same elastic chord that now oscillates in a certain degree of tension, will, by frequent repetition of these oscillations, be so far relaxed, that the extension must be renewed in order to produce the same tension, and consequently the same vibrations, as at first. This appears in many instances in the animal economy, as when different muscles concur to give a fixed point or tension to each other; and thus a weakly child totters as it walks; but by giving it a weight to carry, and by thus increasing the tension of the system, it walks more steadily. In like manner, the fullness of the system gives strength, by distending the vessels everywhere, and so giving tension: hence a man, by good nourishment, from being weak, acquires a great increase of strength in a few days: and, on the other hand, evacuations weaken by taking off the tension.

2. *Effects on the Organs of Sense.* Repetition gives a greater degree of sensibility, in so far only as it renders perception more accurate. Repetition alone gives lasting impression, and thus lays the foundation of memory; for single impressions are but retained for a short time, and are soon forgot. Thus a person, who at present has little knowledge of cloths, will by frequently handling them, acquire a skill of discerning them, which to others seems almost impossible. Many are apt to mistake this for a nicer sensibility, but they are much mistaken; for it is an universal law, that the repetition of impression renders us less acute. This is well illustrated by the operation of medicines; for all medicines which act on the organs of sense must, after some time, be increased in their dose to produce the same effects as at first. This affords a rule in practice with regard to these medicines; it becoming necessary, after a certain time, to change one medicine even for a weaker of the same nature. Thus medicines, which even have no great apparent force, are found, by long use, to destroy the sensibility of the system to
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Custom
and Habit.

Custom
and Habit

other impressions. But to this general rule, that, by repetition, the force of impressions is more and more diminished, there are some exceptions. Thus persons, by a strong emetic, have had their stomachs rendered so irritable, that one 20th of the first dose was sufficient to produce the same effect. This, however, oftener takes place when the vomit is repeated every day; for if the same vomit be given at pretty considerable intervals, the general rule is observed to hold good. Thus two contrary effects of habit are to be noted; and it is proper to observe, that the greater irritability is more readily produced when the first impression is great, as in the case first given of the strong emetic. This may be farther illustrated by the effect of fear, which is commonly observed to be diminished on repetition; which can only be attributed to custom; while, on the other hand, there are instances of persons, who, having once got a great fright, have for ever after continued slaves to fears excited by impressions of the like kind, however slight; which must be imputed entirely to excess of the first impression, as has been already observed. To this head also belongs the association of ideas, which is the foundation of memory and all our intellectual faculties, and is entirely the effect of custom: with regard to the body also, these associations often take place. And sometimes, in producing effects on the body, associations seemingly opposite are formed, which, through custom, become absolutely necessary; e. g. a person long accustomed to sleep in the neighbourhood of a great noise, is so far from being incommoded on that account, that afterwards such noise becomes necessary to produce sleep. It will be of use to attend to this in medical practice; for we ought to allow for, however opposite it may seem at the time, whatever usually attended the purpose we design to effect. Thus, in the instance of sleep, we must not exclude noise when we want to procure rest, or any causes which may seem opposite to such an effect, provided custom has rendered them necessary.

3. *Effects on the Moving Fibres.* A certain degree of tension is necessary to motion, which is to be determined by custom; e. g. a fencer, accustomed to one foil, cannot have the same steadiness or activity with one heavier or lighter. It is necessary also that every motion should be performed in the same situation, or posture of the body, as the person has been accustomed to employ in that motion. Thus, in any surgical operation, a certain posture is recommended; but if the operator has been accustomed to another, such a one, however awkward, becomes necessary afterwards to his right performance of that operation.

Custom also determines the degree of oscillation of which the moving fibres are capable. A person accustomed to strong muscular exertions is quite incapable of the more delicate. Thus writing is performed by small muscular contractions; but if a person has been accustomed to stronger motions with these muscles, he will write with much less steadiness.

This subject of tension, formerly attributed to the *simple fibres*, is probably more strictly applicable to the moving: for besides a tension from flexion, there is also a tension from irritation and sympathy; e. g. the tension of the stomach from food, gives tension to the whole body. Wine and spirituous liquors give tension:

e. g. a person that is so affected with tremor as scarcely to hold a glass of any of these liquors to his head, has no sooner swallowed it, than his whole body becomes steady; and after the system has been accustomed to such stimuli, if they are not applied at the usual time, the whole body becomes flaccid, and of consequence unsteady in its motions.

Again, custom gives facility of motion. This seems to proceed from the distension which the nervous power gives to the moving fibres themselves. But in whatever manner it is occasioned, the effect is obvious; for any new or unusual motion is performed with great difficulty.

It is supposed that sensation depends on a communication with the sensorium commune, by means of organs sufficiently distended with nervous influence. We have found, that sensibility is diminished by repetition. And we have now to observe, that in some cases it may be increased by repetition, owing to the nervous power itself flowing more easily into the part on account of custom. Attention to a particular object may also determine a greater influx into any particular part, and thus the sensibility and irritability of that particular part may be increased.

But with regard to facility of motion, the nervous power, no doubt, flows most easily into those parts to which it has been accustomed: yet facility of motion does not entirely depend on this, but in part also on the concurrence of the action of a great many muscles; e. g. Winslow has observed, that in performing any motion, a number of muscles concur to give a fixed point to those intended chiefly to act, as well as to others that are to vary and modify their action. This, however, is assisted by repetition and the freer influx; as by experience we know the proper attitude for giving a fixed point in order to perform any action with facility and steadiness.

Custom gives a spontaneous motion also, which seems to recur at stated periods, even when the exciting causes are removed. Thus, if the stomach has been accustomed to vomit from a particular medicine, it will require a much smaller dose than at first, nay, even the very sight or remembrance of it will be sufficient to produce the effect: and there are not wanting instances of habitual vomiting, from the injudicious administration of emetics. It is on this account that all spasmodic affections so easily become habitual, and are so difficult of cure; as we must not only avoid all the exciting causes, even in the smallest degree, but also their associations.

Custom also gives strength of motion; strength depends on strong oscillations, a free and copious influx of the nervous power, and on dense solids. But in what manner all these circumstances have been brought about by repetition, has been already explained. The effect of custom in producing strength, may be thus illustrated: a man that begins with lifting a calf, by continuing the same practice every day, will be able to lift it when grown to the full size of a bull.

All this is of considerable importance in the practice of physic, though but too little regarded; for the recovery of weak people, in a great measure, depends on the use of exercise suited to their strength, or rather within it, frequently repeated and gradually increased. Farther, it is necessary to observe, that custom regulates

Custom
and Habit.

Custom
and Habit.

lates the particular celerity with which each motion is to be performed; for a person, accustomed, for a considerable time to one degree of celerity, becomes incapable of a greater; e. g. a man accustomed to slow walking will be out of breath before he can run 20 paces. The train or order in which our motions are to be performed, is also established by custom; for if a man hath repeated motions, for a certain time, in any particular order, he cannot afterwards perform them in any other. Custom also very frequently associates motions and sensations: thus, if a person has been in use of associating certain ideas with the ordinary stimulus which in health excites urine, without these ideas the usual inclination will scarce excite that excretion; and, when these occur, will require it even in the absence of the primary exciting cause: e. g. it is very ordinary for a person to make urine when going to bed; and if he has been for any length of time accustomed to do so, he will ever afterwards make urine at that time, though otherwise he would often have no such inclination: by this means some secretions become in a manner subject to the will. The same may be said of going to stool; and this affords us a good rule in the case of costiveness; for by endeavouring to fix a stated time for this evacuation, it will afterwards, at such a time, more readily return. It is farther remarkable, that motions are inseparably associated with other motions: this, perhaps, very often proceeds from the necessary degree of tension; but it also often depends merely on custom, an instance of which we have in the uniform motions of our eyes.

4. *Effects on the whole Nervous Power.* We have found, that, by custom, the nervous influence may be determined more easily into one part than another; and therefore, as all the parts of the system are strongly connected, the sensibility, irritability, and strength of any particular part, may be thus increased. Custom also has the power of altering the natural temperament, and of inducing a new one. It is also in the power of custom to render motions periodical, and periodically spontaneous. An instance of this we have in sleep, which is commonly said to be owing to the nervous power being exhausted, the necessary consequence of which is sleep, e. g. a rest of the voluntary motions to favour the recruit of that power; but if this were the case, the return of sleep should be at different times, according as the causes which diminish the nervous influence operate more or less powerfully; whereas the case is quite otherwise, these returns of sleep being quite regular. This is no less remarkable in the appetites, that return at particular periods, independent of every cause but custom. Hunger, e. g. is an extremely uneasy sensation; but goes off of itself, if the person did not take food at the usual time. The excretions are farther proofs of this, e. g. going to stool, which, if it depended on any particular irritation, should be at longer or shorter intervals according to the nature of the aliment. There are many other instances of this disposition of the nervous influence to periodical motions, as the story of the idiot of Stafford, recorded by Dr Plot (*Spectator*, N^o 447.), who, being accustomed to tell the hours of the church-clock as it struck, told them as exactly when it did not strike by its being out of order. Montaigne tells us of some oxen that were employed in a machine for

drawing water, who, after making 300 turns, which was the usual number, could be stimulated by no whip or goad to proceed farther. Infants, also, cry for and expect the breast at those times in which the nurse has been accustomed to give it.

Custom
and Habit.

Hence it would appear, that the human economy is subject to periodical revolutions, and that these happen not oftener may be imputed to variety; and this seems to be the reason why they happen oftener in the body than mind, because that is subject to greater variety. We see frequent instances of this in diseases, and in their crises; intermitting fevers, epilepsies, asthmas, &c. are examples of periodical affections; and that critical days are not so strongly marked in this country as in Greece, and some others, may be imputed to the variety and instability of our climate; but perhaps still more to the less sensibility and irritability of our system; for the exhibition of medicine has little effect in disturbing the crises, though it be commonly assigned as a cause.

We are likewise subject to many habits independent of ourselves, as from the revolutions of the celestial bodies, particularly the sun, which determines the body, perhaps, to other daily revolutions besides sleeping and waking. There are also certain habits depending on the seasons. Our connections, likewise, with respect to mankind, are means of inducing habits. Thus regularity from associating in business induces regular habits both of mind and body.

There are many diseases which, though they arose at first from particular causes, at last continue merely through custom or habit. These are chiefly of the nervous system. We should therefore study to counteract such habits; and accordingly Hippocrates, among other things for the cure of epilepsy, orders an entire change of the manner of life. We likewise imitate this in the chincough; which often resists all remedies, till the air, diet, and ordinary train of life, are changed.

5. *Effects on the Blood-vessels.* From what has been said on the nervous power, the distribution of the fluids must necessarily be variously affected by custom, and with that the distribution of the different excretions; for though we make an estimate of the proportion of the excretions to one another, according to the climate and seasons, they must certainly be very much varied by custom.

On this head we may observe, that blood-letting has a manifest tendency to increase the quantity of the blood; and if this evacuation be repeated at stated times, such symptoms of repletion, and such motions, are excited at the returning periods, as render the operation necessary. The same has been observed in some spontaneous hemorrhagies. These, indeed, at first, may have some exciting causes, but afterwards they seem to depend chiefly on custom. The best proof of this is with regard to the menstrual evacuation. There is certainly something originally in females, that determines that evacuation to the monthly periods. Constant repetition of this comes to fix it, independent of strong causes, either favouring or preventing repletion; e. g. blood-letting will not impede it, nor filling the body induce it: and, indeed, so much is this evacuation connected with periodical motions, that it is little in our power to produce any effect by medicines but

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Customs. at those particular times. Thus if we would relax the uterine system, and bring back this evacuation when suppressed, our attempts would be vain and fruitless, unless given at that time when the menses should have naturally returned.

CUSTOMS, in political economy, or the duties, toll, tribute, or tariff, payable to the king upon merchandise exported and imported, form a branch of the perpetual taxes. See **TAX**.

The considerations upon which this revenue (or the more ancient part of it, which arose only from exports) was invested in the king, were said to be two: 1. Because he gave the subject leave to depart the kingdom, and to carry his goods along with him. 2. Because the king was bound of common right to maintain and keep up the ports and havens, and to protect the merchant from pirates. Some have imagined they are called with us *customs*, because they were the inheritance of the king by immemorial usage and the common law, and not granted him by any statute: but Sir Edward Coke hath clearly shown, that the king's first claim to them was by grant of parliament 3 Edw. I. though the record thereof is not now extant. And indeed this is in express words confessed by statute 25 Edw. I. c. 7. wherein the king promises to take no customs from merchants, without the common assent of the realm, "saving to us and our heirs the customs on wool, skins, and leather, formerly granted to us by the commonalty aforesaid." These were formerly called *hereditary customs* of the crown; and were due on the exportation only of the said three commodities, and of none other: which were styled the *staple* commodities of the kingdom, because they were obliged to be brought to those ports where the king's staple was established, in order to be there first rated, and then exported. They were denominated in the barbarous Latin of our ancient records, *custuma*, (an appellation which seems to be derived from the French word *coutum* or *coutum*, which signifies toll or tribute, and owes its own etymology to the word *coust*, which signifies price, charge, or, as we have adopted it in English, *cost*); not *consuetudines*, which is the language of our law whenever it means merely usages. The duties on wool, sheep-skins or woolfells, and leather exported, were called *custuma antiqua sive magna*, and were payable by every merchant, as well native as stranger: with this difference, that merchant-strangers paid an additional toll, viz. half as much again as was paid by natives. The *custuma parva et nova* were an impost of 3d. in the pound, due from merchant-strangers only, for all commodities as well imported as exported; which was usually called the *aliens* duty, and was first granted in 31 Edw. I. But these ancient hereditary customs, especially those on wool and woolfells, came to be of little account, when the nation became sensible of the advantages of a home manufacture, and prohibited the exportation of wool by statute 11 Edw. III. c. 1.

Other customs payable upon exports and imports were distinguished into subsidies, tonnage, poundage, and other imposts. Subsidies were such as were imposed by parliament upon any of the staple commodities before mentioned, over and above the *custuma antiqua et magna*: tonnage was a duty upon all wines imported, over and above the prisage and butlerage

aforesaid: poundage was a duty imposed *ad valorem*, at the rate of 12d. in the pound, on all other merchandise whatsoever: and the other imposts were such as were occasionally laid on by parliament, as circumstances and times required. These distinctions are now in a manner forgotten, except by the officers immediately concerned in this department; their produce being in effect all blended together, under the one denomination of the *customs*.

By these we understand, at present, a duty or subsidy paid by the merchant at the quay upon all imported as well as exported commodities, by authority of parliament; unless where, for particular national reasons, certain rewards, bounties or drawbacks, are allowed for particular exports or imports. The customs thus imposed by parliament are chiefly contained in two books of rates, set forth by parliamentary authority; one signed by Sir Harbottle Grimston, speaker of the house of commons in Charles II.'s time; and the other an additional one, signed by Sir Spencer Compton, speaker in the reign of George I. to which also subsequent additions have been made. Aliens pay a larger proportion than natural subjects, which is what is now generally understood by the *aliens* duty; to be exempted from which is one principal cause of the frequent applications to parliament for acts of naturalization.

These customs are then, we see, a tax immediately paid by the merchant, although ultimately by the consumer. And yet these are the duties felt least by the people: and if prudently managed, the people hardly consider that they pay them at all. For the merchant is easy, being sensible he does not pay them for himself; and the consumer, who really pays them, confounds them with the price of the commodity; in the same manner as Tacitus observes, that the emperor Nero gained the reputation of abolishing the tax of the sale of slaves, though he only transferred it from the buyer to the seller; so that it was, as he expresses it, *remissum magis specie, quam vi: quia cum venditor pendere juberetur, in partem pretii emptoribus accrescebat*. But this inconvenience attends it on the other hand, that these imposts, if too heavy, are a check and cramp upon trade; and especially when the value of the commodity bears little or no proportion to the quantity of the duty imposed. This in consequence gives rise also to smuggling, which then becomes a very lucrative employment: and its natural and most reasonable punishment, viz. confiscation of the commodity, is in such cases quite ineffectual; the intrinsic value of the goods, which is all that the smuggler has paid, and therefore all that he can lose, being very inconsiderable when compared with his prospect of advantage in evading the duty. Recourse must therefore be had to extraordinary punishments to prevent it; perhaps even to capital ones: which destroys all proportion of punishment, and puts murderers upon an equal footing with such as are really guilty of no natural, but merely a positive offence.

There is also another ill consequence attending high imposts on merchandise, not frequently considered, but indisputably certain; that the earlier any tax is laid on a commodity, the heavier it falls upon the consumer in the end; for every trader, through
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whose hands it passes, must have a profit, not only upon the raw material and his own labour and time in preparing it, but also upon the very tax itself, which he advances to the government; otherwise he loses the use and interest of the money which he so advances. To instance in the article for foreign paper. The merchant pays a duty upon importation, which he does not receive again till he sells the commodity, perhaps at the end of three months. He is therefore equally entitled to a profit upon that duty which he pays at the customhouse, as to a profit upon the original price which he pays to the manufacturer abroad; and considers it accordingly in the price he demands of the stationer. When the stationer sells it again, he requires a profit of the printer or bookseller upon the whole sum advanced by him to the merchants: and the bookseller does not fail to charge the full proportion to the student or ultimate consumer; who therefore does not only pay the original duty, but the profits of these three intermediate traders who have successively advanced it for him. This might be carried much farther in any mechanical, or more complicated, branch of trade.

Custom-House, an office established by the king's authority in the maritime cities, or port towns, for the receipt and management of the customs and duties of importation and exportation, imposed on merchandises, and regulated by books of rates.

CUSTOS BREVIUM, the principal clerk belonging to the court of common pleas, whose business it is to receive and keep all the writs made returnable in that court, filing every return by itself; and, at the end of each term, to receive of the prothonotaries all the records of the nisi prius, called the *posseas*.

Custos Rotulorum, an officer who has the custody of the rolls and records of the session of peace, and also of the commission of the peace itself.

He usually is some person of quality, and always a justice of the peace, of the quorum, in the county where he is appointed.

Custos Spiritualium, he that exercises the spiritual jurisdiction of a diocese, during the vacancy of any see, which, by the canon law, belongs to the dean and chapter; but at present, in England, to the archbishop of the province by prescription.

Custos Temporalium, was the person to whom a vacant see or abbey was given by the king, as supreme lord. His office was, as steward of the goods and profits, to give an account to the exchequer, who did the like to the exchequer.

CUT-A FEATHER, in the sea-language. If a ship has too broad a bow, it is common to say, *she will not cut a feather*; that is, she will not pass through the water so swift as to make it foam or froth.

Cut-Purse, in Law; if any person *clam et secrete*, and without the knowledge of another, cut his purse or pick his pocket, and steal from thence above the value of twelve pence, it is felony excluded clergy.

Cut-purses or *saccularii*, were more severely punished than common thieves by the Roman and Athenian laws.

Cut-Water, the sharp part of the head of a ship below the beak. It is so called, because it cuts or divides the water before it comes to the bow, that it

may not come too suddenly to the breadth of the ship, which would retard it.

CUTANEOUS, in general, an appellation given to whatever belongs to the cutis or skin. Thus, we say *cutaneous* eruptions; the itch is a *cutaneous* disease.

CUTH, or **СУТНАН**, in *Ancient Geography*, a province of Assyria, which, as some say, lies upon the Araxes, and is the same with Cush: but others take it to be the same with the country which the Greeks call *Susiana*, and which to this very day, says Dr Wells, is by the inhabitants called *Chusefan*. F. Calmet is of opinion that Cuthah and Scythia are the same place, and that the Cuthites who were removed into Samaria by Salmaneser (2 Kings xvii. 24.) came from Cush or Cuth, mentioned in Gen. ii. 13. See the article **CUSH**. The Cuthites worshipped the idol Nergal, Id. ibid. 30. These people were transplanted into Samaria in the room of the Israelites, who before inhabited it. Calmet is of opinion, they came from the land of Cush, or Cuthah upon the Araxes; and that their first settlement was in the cities of the Medes, subdued by Salmaneser and the kings of Assyria his predecessors. The Scripture observes, that the Cuthites, upon their arrival in this new country, continued to worship the gods formerly adored by them beyond the Euphrates. Esharaddon king of Assyria, who succeeded Sennacherib, appointed an Israelitish priest to go thither, and instruct them in the religion of the Hebrews. But these people thought they might reconcile their old superstition with the worship of the true God. They therefore framed particular gods for themselves, which they placed in the several cities where they dwelt. The Cuthites then worshipped both the Lord and their false gods together, and chose the lowest of the people to make priests of them in the high places; and they continued this practice for a long time. But afterwards they forsook the worship of idols, and adhered only to the law of Moses, as the Samaritans, who are descended from the Cuthites, do at this day.

CUTICLE, the SCARF SKIN. See *ANATOMY Index*.

CUTICULAR, the same with **CUTANEOUS**.

CUTIS, the SKIN. See *ANATOMY Index*.

CUTTER, a small vessel, commonly navigated in the channel of England. It is furnished with one mast, and rigged as a sloop. Many of these vessels are used in an illicit trade, and others are employed by government to take them; the latter of which are either under the direction of the admiralty or customhouse. See a representation of a cutter of this sort in the plate referred to from the article **VESSEL**.

CUTTER, is also a small boat used by ships of war.

Cutter of the Tallies, an officer of the exchequer, whose business is to provide wood for the tallies, to cut or notch the sum paid upon them; and then to cast them into court, to be written upon. See **TALLY**.

CUTTING, a term used in various senses and various arts; in the general it implies a division or separation.

CUTTING is particularly used in heraldry, where the shield is divided into two equal parts, from right to left, parallel to the horizon, or in the fesse-way.

The word also is applied to the honourable ordinaries, and even to animals and moveables, when they are divided equally the same way; so, however, as that one

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Cutting. one moiety is colour, the other metal. The ordinaries are said to be cut, couped, when they do not come full to the extremities of the shield.

CUTTING, in chirurgery, denotes the operation of extracting the stone out of the bladder by section. See **LITHOTOMY**, **SURGERY Index**.

CUTTING, in coinage. When the laminæ or plates of the metal, be it gold, silver, or copper, are brought to the thickness of the species to be coined, pieces are cut out, of the thickness, and nearly of the weight, of the intended coin; which are now called *planchets*, till the king's image hath been stamped on them. The instrument wherewith they cut, consists of two pieces of steel, very sharp, and placed over one another; the lower a little hollow, representing a mortar, the other a pestle. The metal put between the two, is cut out in the manner described under **COINAGE**.

Note. Medallions, where the relieve is to be great, are not cut, but cast or moulded.

CUTTING, in the manege, is when the horse's feet interfere; or when with the shoe of one foot he beats off the skin from the pastern joint of another foot. This is more frequent in the hind feet than the fore: the causes are either weariness, weakness in the reins, not knowing how to go, or ill shoeing.

CUTTING, in painting, the laying one strong lively colour over another, without any shade or softening. The cutting of colours has always a disagreeable effect.

CUTTING in wood, a particular kind of sculpture or engraving; denominated from the matter wherein it is employed.

It is used for various purposes; as for figured letters; head and tail pieces of books; and even for schemes and other figures, to save the expences of engraving on copper; and the prints and stamps for paper, callicoes, linens, &c.

The invention of cutting in wood, as well as that in copper, is ascribed to a goldsmith of Florence; but it is to Albert Durer and Lucas they are both indebted for their perfection. See **ENGRAVING** and **PRINTING**.

One Hugo de Carpi invented a manner of cutting in wood, by means whereof the prints appeared as if painted in clair-obscur. In order to this, he made three kinds of stamps for the same design; which were drawn one after another through the press for the same print: they were so conducted, as that one served for the grand lights, a second for the demi-tints, and a third for the outlines and the deep shadows.

The art of cutting in wood was certainly carried to a very great pitch above two hundred years ago; and might even vie, for beauty and justness, with that of engraving in copper. At present it is in a low condition, as having been long neglected, and the application of artists wholly employed on copper, as the more easy and promising province: not but that wooden cuts have the advantage of those in copper on many accounts; chiefly for figures and devices in books; as being printed at the same time and in the same press as the letters; whereas for the other there is required a particular impression. In the representation of plants and flowers, and in designs for paper-hangings, where the outline only is wanted to be printed in a bold

full manner, this method will be found cheaper and more effectual than the use of copper-plates.

The cutters in wood begin with preparing a plank or block of the size and thickness required, and very even and smooth on the side to be cut: for this, they usually take beech, pear-tree, or box; though the latter is the best, as being the closest, and least liable to be worm-eaten. The wood being cut into a proper form and size, should be planed as even and truly as possible: it is then fit to receive the drawing or chalking of the design to be engraved. But the effect may be made more apparent, and the ink, if any be used in drawing, be prevented from running, by spreading thinly on the surface of the wood white lead tempered with water, by grinding with a brush pencil, and afterwards rubbing it well with a fine linen rag whilst it is wet: and when it is dry, brushing off any loose or powdery part with a soft pencil.

On this block they draw their design with a pen or pencil, just as they would have it printed. Those who cannot draw their own design, as there are many who cannot, make use of a design furnished them by another; fastening it upon the block with paste made of flour and water, with a little vinegar or gum tragacanth; the strokes or lines turned towards the wood.

When the paper is dry, they wash it gently over with a sponge dipped in water; which done, they take off the paper by little and little, still rubbing it a little first with the tip of the finger; till at length there be nothing left on the block but the strokes of ink that form the design, which mark out so much of the block as is to be spared or left standing. Figures are sometimes cut out of prints, by taking away all the white part or blank paper, and cemented with gum-water to the surface of the wood. The rest they cut off, and take away very curiously with the points of very sharp knives, or little chisels or gravers, according to the bigness or delicacy of the work: for they need no other instruments.

It differs from engraving in copper, because in the former the impression comes from the prominent parts or strokes left uncut; whereas in the latter, it comes from the channels cut in the metal.

The manner of printing with wooden prints is much more expeditious and easy than that of copper-plate: because they require only to be dipped in the printing-ink, and impressed on the object in the same manner and with the same apparatus as the letter-printing is managed: and for purposes that do not require great correctness, the impression is made by the hand only, a proper handle being fixed to the middle of the print, by which it is first dipped in the ink, spread by means of a brush on a block of proportionable size covered with leather; and then lifted up instantly, and dropped with some little force on the paper which is to receive the impression.

Most of our readers are probably not ignorant that the art of engraving on wood has been revived of late years, and has been carried to great perfection by Messrs Bewick of Newcastle, and other ingenious artists. Of this number we may mention Messrs Nesbit and Anderson of London. The Natural History of Quadrupeds, in one volume 8vo, and the Natural

Cuttings
||
Cutts.

History of British Birds, in two volumes, published with engravings cut in wood by Messrs Bewick, are excellent specimens of the degree of perfection at which this art has arrived.

CUTTINGS, or slips, in *Gardening*, the branches or sprigs of trees or plants, cut or slipped off to set again: which is done in any moist fine earth.

The best season is from August to April; but care is to be taken, when it is done, the sap be not too much in the top, lest the cut die before that part in the earth have root enough to support it: nor yet must it be too dry or scanty; the sap in the branches assisting it to take root.

In providing the cuttings, such branches as have joints, knots, or burrs, are to be cut off two or three inches beneath them, and the leaves to be stripped off so far as they are set in the earth. Small top branches, of two or three years growth, are fittest for this operation.

CUTTLE-FISH. See *SEPIA*. The bone of the cuttle-fish is hard on one side, but soft and yielding on the other; so as readily to receive pretty neat impressions from medals, &c. and afterwards to serve as a mould for casting metals, which thus take the figure of the original; the bone is likewise frequently employed for cleaning or polishing silver. This fish contains in a certain distinct vessel a fluid as black as ink; which it is said to emit when pursued, and thus to conceal itself by discolouring the water. The particular qualities of this liquor are not yet determined. Dr Leigh says, he saw a letter which had been written with it ten years before, and which still continued. Some report that the ancients made their ink from it; and others, that it is the basis of China or Indian ink; but both these accounts appear to have little foundation. Pliny, speaking of the inks made use of in his time, after observing that the cuttle-fish is in this respect of a wonderful nature, adds expressly, that ink was not made from it.

CUTTS, JOHN LORD, a soldier of most hardy bravery in King William's wars, was son of Richard Cutts, Esq. of Matching in Essex; where the family were settled about the time of Henry VI. and had a great estate. He entered early into the service of the duke of Monmouth, was aid-de-camp to the duke of Lorraine in Hungary, and signalized himself in a very extraordinary manner at the taking of Buda by the Imperialists in 1686; which important place had been for near a century and a half in the hands of the Turks. Mr Addison, in a Latin poem worthy of the Augustan age, plainly hints at Mr Cutts's distinguished bravery at that siege. Returning to England at the revolution, he had a regiment of foot; was created baron of Gowran in Ireland, Dec. 6. 1690; appointed governor of the isle of Wight, April 14. 1693; was made a major-general; and, when the assassination project was discovered, in 1695-6, was captain of the king's guard. In 1698 he was complimented by Mr John Hopkins, as one to whom "a double crown was due," as a hero and a poet. He was colonel of the Coldstream, or second regiment of guards, in 1701; when Mr Steele, who was indebted to his interest for a military commission, inscribed to him his first work, "The Christian Hero." On the accession of Queen Anne, he was made a lieutenant-general of the forces

in Holland; commander in chief of the forces in Ireland, under the duke of Ormond, March 23. 1704-5; and afterwards one of the lords justices of that kingdom, to keep him out of the way of action; a circumstance which broke his heart. He died at Dublin, Jan. 26. 1706-7, and is buried there in the cathedral of Christ church. He wrote a poem on the death of Queen Mary; and published, in 1687, "Poetical exercises, written upon several occasions, and dedicated to her royal highness Mary princess of Orange." It contains, besides the dedication signed J. Cutts, verses to that princess; a poem on Wisdom; another to Mr Waller on his commending it; seven more copies of verses (one of them called *La Muse Cavalier*, which had been ascribed to Lord Peterborough, and as such mentioned by Mr Walpole in the list of that nobleman's writings), and 11 songs; the whole composing but a very thin volume; which is by no means so scarce as Mr Walpole supposes it to be. A specimen of his poetry (of which the five first lines are quoted by Steele in his fifth Tatler) is here added:

Only tell her that I love,
Leave the rest to her and fate;
Some kind planet from above
May perhaps her pity move;
Lovers on their stars must wait;
Only tell her that I love.
Why, oh, why should I despair?
Mercy's pictur'd in her eye;
If she once vouchsafe to hear,
Welcome hope, and welcome fear.
She's too good to let me die;
Why, oh, why should I despair?

CUVETTE, or CUNETTE, in *Fortification*, is a kind of ditch within a ditch, being a pretty deep trench, about four fathoms broad, sunk, and running along the middle of the great dry ditch, to hold water; serving both to keep off the enemy, and prevent him from mining.

CYATHUS, *κυαθος* (from the verb *κυειν*, to pour out), was a common measure among the Greeks and Romans, both of the liquid and dry kind. It was equal to an ounce, or the twelfth part of a pint. The cyathus was made with a handle like our punch-ladle. The Roman topers were used to drink as many *cyathi* as there were muses, i. e. nine; also as many as there were letters in the patron's name. Thus, they had modes of drinking similar to the modern health-drinking or toasting. They say, that the cyathus of the Greeks weighed 10 drachms; and Galen says the same; though elsewhere he says, that a cyathus contains 12 drachms of oil, 13 drachms and one scruple of wine, water, or vinegar, and 18 drachms of honey. Galen says, that among the Veterinarii the cyathus contained two ounces.

CYAXARES, son of Phraortes, was king of Media and Persia. He bravely defended his kingdom, which the Scythians had invaded. He made war against Alyattes king of Lydia; and subjected to his power all Asia beyond the river Halys. He died after a reign of 40 years, in the year of Rome 160.

CYAXARES II. is supposed by some to be the same as Darius the Mede. He was son of Astyages king of Media. He added seven provinces to his father's dominions,

Cutts
||
Cyaxares.

Cybele
||
Cycas.

dominions, and made war against the Assyrians, whom Cyrus favoured.

CYBEBE, a name of Cybele, from *κυβηβαιν*, because in the celebration of her festivals men were driven to madness.

CYBELE, in Pagan mythology, the daughter of Cælus and Terra, and wife of Saturn. She is supposed to be the same as Ceres, Rhea, Ops, Vesta, Bona Mater, Magna Mater, Berecynthia, Dindymene, &c. According to Diodorus, she was the daughter of a Lydian prince, and as soon as she was born she was exposed on a mountain. She was preserved by sucking some of the wild beasts of the forest, and received the name of Cybele from the mountain where her life had been preserved. When she returned to her father's court, she had an intrigue with Atys, a beautiful youth, whom her father mutilated, &c. All the mythologists are unanimous in mentioning the amours of Atys and Cybele. In Phrygia the festivals of Cybele were observed with the greatest solemnity. Her priests, called *Corybantes*, *Galli*, &c. were not admitted in the service of the goddess without a previous mutilation. In the celebration of the festivals, they imitated the manners of madmen, and filled the air with shrieks and howlings mixed with the confused noise of drums, tabrets, bucklers, and spears. This was in commemoration of the sorrow of Cybele for the loss of her favourite Atys. Cybele was generally represented as a robust woman far advanced in her pregnancy, to intimate the fecundity of the earth. She held keys in her hand, and her head was crowned with rising turrets, and sometimes with the leaves of an oak. She sometimes appears riding in a chariot drawn by two tame lions: Atys follows by her side, carrying a ball in his hand, and supporting himself upon a fir-tree which is sacred to the goddess. Sometimes she is represented with a sceptre in her hand, with her head covered with a tower. She is also seen with many breasts, to show that the earth gives aliments to all living creatures; and she generally carries two lions under her arms. From Phrygia the worship of Cybele passed into Greece, and was solemnly established at Eleusis under the name of the *Eleusinian mysteries of Ceres*. The Romans, by order of the Sibylline books, brought the statue of the goddess from Pessinus into Italy; and when the ship which carried it had run on a shallow bank of the Tiber, the virtue and innocence of Claudia was vindicated in removing it with her girdle. It is supposed that the mysteries of Cybele were first known about 257 years before the Trojan war, or 1580 years before the Augustan age. The Romans were particularly superstitious in washing every year, on the 6th of the kalends of April, the shrine of this goddess in the waters of the river Almon. There prevailed many obscenities in the observation of the festivals; and the priests themselves were the most eager to use indecent expressions, and to show their unbounded licentiousness by the impurity of their actions.

CYBELLICUM MARMOR, a name given by the ancients to a species of marble dug in a mountain of that name in Phrygia. It was of an extremely bright white, with broad veins of bluish black.

CYCAS, in *Botany*: A genus of plants belonging to the natural order, *Palmæ*. See *BOTANY Index*.

This is a valuable tree to the inhabitants of India, as it not only furnishes a considerable part of their constant bread, but also supplies them with a large article of trade. The body contains a farinaceous substance, which they extract from it and make into bread in this manner: they saw the body into small pieces, and after beating them in a mortar, pour water upon the mass; this is left for some hours to settle. When fit, it is strained through a cloth, and the finer particles of the mealy substance running through with the water, the gross ones are left behind and thrown away. After the farinaceous part is sufficiently subsided, the water is poured off, and the meal being properly dried, is occasionally made into cakes and baked. These cakes are said to eat nearly as well as wheaten bread, and are the support of the inhabitants for three or four months in the year.

The same meal more finely pulverized, and reduced into granules, is what is called *fago*, which is sent into all parts of Europe, and sold in the shops as a great strengthener and restorative.

There is a sort of fago made in the West Indies, and sent to Europe in the same manner as that from the East; but the West India fago is far inferior in quality to the other. It is supposed to be made from the pith of the areca oleracea. See *ARECA*.

The *brood boom* (or bread-tree) of the Hottentots, a plant discovered by Professor Thunberg, is described as a new species of this genus, by the name of *cycas Caffra*, in the *Nova Acta Reg. Soc. Scient. Ups.* vol. ii. p. 283. Table V. The pith, or *medulla*, which abounds in the trunk of this little palm, Mr Sparrman informs us, is collected and tied up in dressed calf or sheep-skins, and then buried in the earth for the space of several weeks, till it becomes sufficiently mellow and tender to be kneaded up with water into a paste, of which they afterwards make small loaves or cakes, and bake them under the ashes. Other Hottentots, not quite so nice, nor endued with patience enough to wait this tedious method of preparing it, are said to dry and roast the pith or marrow, and afterwards make a kind of frumenty of it.

CYCEON, from *κοκκιον*, "to mix;" a name given by the ancient poets and physicians to a mixture of meal and water, and sometimes of other ingredients. These constituted the two kinds of cyceon; the coarser being of water and meal alone; the richer and more delicate composed of wine, honey, flour, water, and cheese. Homer, in the 11th Iliad, talks of cyceon made with cheese and the meal of barley mixed with wine, but without any mention either of honey or water; and Ovid, describing the draught of cyceon given by the old woman of Athens to Ceres, mentions only flour and water. Dioscorides understood the word in both these senses; but extolled it most in the coarse and simple kind: he says, when prepared with water alone, it refrigerates and nourishes greatly.

CYCINNIS, a Grecian dance, so called from the name of its inventor, one of the satyrs belonging to Bacchus. It consisted of a combination of grave and gay movements.

CYCLADES INSULAE; islands anciently so called, as Pliny informs us, from the cyclus or orb in which they lie; beginning from the promontory Geræstum of Eubœa, and lying round the island Delos, (Pliny).

Cyclamen
||
Cycloid.

Where they are, and what their number, is not so generally agreed. Strabo says, they were at first reckoned 12, but that many others were added: yet most of them lie to the south of Delos, and but few to the north; so that the middle or centre, ascribed to Delos, is to be taken in a loose, not a geometrical, sense. Strabo recites them after Artemidorus, as follows: Helena, Ceos, Cynthus, Seriphus, Melus, Siphus, Cimolus, Prepefinthus, Olearus, Naxus, Parus, Syrus, Myconus, Tenus, Andrus, Gyarus; but he excludes from the number Prepefinthus, Olearus, and Gyarus.

CYCLAMEN, **SOWBREAD**: A genus of plants, belonging to the pentandria class; and in the natural method ranking under the 21st order, *Precia*. See *BOTANY Index*.

CYCLE, in *Chronology*, a certain period or series of numbers, which regularly proceed from the first to the last, and then return again to the first, and so circulate perpetually. See *CHRONOLOGY*, N^o 26.

CYCLE of Indiction, is a series of 15 years, returning constantly around, like the other cycles, and commenced from the third year before Christ; whence it happens, that if 3 be added to any given year of Christ, and the sum be divided by 15, what remains is the year of the indiction.

CYCLE of Indiction, a period of 15 years, in use among the Romans. It has no connection with the celestial motion, but was instituted, according to Baronius, by Constantine; who having reduced the time which the Romans were obliged to serve to 15 years, he was consequently obliged every 15 years to impose, or *indicere* according to the Latin expression, an extraordinary tax for the payment of those who were discharged; and hence arose this cycle, which, from the Latin word *indicere*, was styled *indiction*.

CYCLE of the Moon, called also the *golden number*, and the *Metonic cycle*, from its inventor Meton the Athenian, is a period of 19 years, which when they are completed, the new moons and full moons return on the same days of the month, so that on whatever days the new and full moons fall this year, 19 years hence they will happen on the very same days of the month, though not at the same hour, as Meton and the fathers of the primitive church thought; and therefore, at the time of the council of Nice, when the method of finding the time for observing the feast of Easter was established, the numbers of the lunar cycle were inserted in the kalendar, which, upon the account of their excellent use, were set in golden letters, and the year of the cycle called the *golden number* of that year.

CYCLE of the Sun, a revolution of 28 years, which being elapsed, the dominical or Sunday letters return to their former place, and proceed in the same order as before, according to the Julian kalendar.

CYCLISUS, in *Surgery*, an instrument in the form of a half moon, used in scraping the skull, in case of fractures on that part.

CYCLOID, a curve on which the doctrine of pendulums, and time-measuring instruments, in a great measure depends. Mr Huygens demonstrated, that from whatever point or height, a heavy body, oscillating on a fixed centre, begins to descend, while it continues to move in a cycloid, the time of its falls or oscillations

will be equal to each other. It is likewise demonstrable, that it is the curve of quickest descent, i. e. a body falling in it, from any given point above, to another not exactly under it, will come to this point in a less time than in any other curve passing through those two points. This curve is thus generated: suppose a wheel or circle to roll along a straight line till it has completed just one revolution; a nail or point in that part of the circumference of the circle, which at the beginning of the motion touches the straight line, will, at the end of the revolution, have described a cycloid on a vertical plane.

CYCLOPÆDIA, or **ENCYCLOPÆDIA**, denotes the circle or compass of arts and sciences. A cyclopædia, say the authors of the French Encyclopédie, ought to explain as much as possible the order and connexion of human knowledge. See *ENCYCLOPÆDIA*.

CYCLOPS, in *Fabulous History*, the sons of Neptune and Amphitrite; the principal of whom were Brontes, Steropes, and Peracmon; but their whole number amounted to above an hundred. Jupiter threw them into Tartarus as soon as they were born; but they were delivered at the intercession of Tellus, and became the assistants of Vulcan. They were of prodigious stature, and had each only one eye, which was placed in the middle of their foreheads.

Some mythologists say, that the Cyclops signify the vapours raised in the air, which occasion thunder and lightning: on which account they are represented as forging the thunderbolts of Jupiter. Others represent them as the first inhabitants of Sicily, who were cruel, of a gigantic form, and dwelt round Mount Ætna.

CYCLOPTERUS, the **SUCKER**, a genus of fishes belonging to the order of amphibia nantes. See *ICHTHOLOGY Index*.

CYDER, or **CIDER**, an excellent drink made of the juice of apples, especially of the more curious table kinds; the juice of these being esteemed more cordial and pleasant than that of the wild or harsh kinds. In making this drink, it hath long been thought necessary, in every part of England, to lay the harder cyder-fruits in heaps for some time before breaking their pulps; but the Devonshire people have much improved this practice. In other countries, the method is to make these heaps of apples in a house, or under some covering inclosed on every side. This method hath been found defective, because, by excluding the free air, the heat soon became too violent, and a great perspiration ensued, by which in a short time the loss of juice was so great, as to reduce the fruit to half their former weight, attended with a general rotteness, rancid smell, and disagreeable taste. In the South-hams, a middle way has been pursued, to avoid the inconveniences and loss attending the above. They make their heaps of apples in an open part of an orchard, where, by the means of a free air and less perspiration, the desired maturity is brought about, with an inconsiderable waste of the juices and decay of the fruit entirely free of rankness; and though some apples rot even in this manner, they are very few, and are still fit for use; all continue plump and full of juices, and very much heighten the colour of cyders, without ill taste or smell.

Cyclo-
pædia
||
Cyder.

Cyder.

In pursuing the Devonshire method it is to be observed, 1. That all the promiscuous kinds of apples that have dropped from the trees, from time to time, are to be gathered up and laid in a heap by themselves, and to be made into cyder after having lain about ten days. 2. Such apples as are gathered from the trees, having already acquired some degree of maturity, are likewise to be laid in a heap by themselves for about a fortnight. 3. The later hard fruits, which are to be left on the trees till the approach of frost is apprehended, are to be laid in a separate heap, where they are to remain a month or six weeks, by which, notwithstanding frost, rain, &c. their juices will receive such a maturation, as will prepare them for a kindly fermentation, and which they could not have attained on the trees by means of the coldness of the season.

It is observable, that the riper and mellow the fruits are at the time of collecting them into heaps, the shorter should be their continuance there; and on the contrary, the harsher, immaturer, and harder they are, the longer they should rest.

These heaps should be made in an even and open part of an orchard, without any regard to covering from rain, dews, or what else may happen during the apples staying there; and whether they be carried in and broke in wet or dry weather, the thing is all the same. If it may be objected, that during their having lain together in the heap, they may have imbibed great humidity, as well from the air as from the ground, rain, dews, &c. which are mixed with their juices; the answer is, this will have no other effect than a kindly diluting, natural to the fruit, by which means a speedier fermentation ensues, and all heterogeneous humid particles are thrown off.

The apples are then ground, and the pummice is received in a large open-mouthed vessel, capable of containing as much thereof as is sufficient for one making, or one cheese. Though it has been a custom to let the pummice remain some hours in the vessel, appropriated to contain it, yet this practice is by no means commendable; for if the fruits did not come ripe from the trees, or otherwise matured, the pummice remaining in the vat too long, will acquire such harshness and coarseness from the skins as is never to be got rid of; and if the pummice is of well ripened fruit, the continuing too long there will occasion it to contract a sharpness that very often is followed with want of spirit and pricking: nay, sometimes it even becomes vinegar, or always continues of a wheyish colour; all which proceeds from the heat of fermentation that it almost instantly falls into on lying together; the pummice therefore should remain no longer in the vat than until there may be enough broke for one pressing, or that all be made into cheese, and pressed the same day it is broken. See farther on this subject *AGRICULTURE Index*.

In Plate CLXVIII. is a perspective view of the cyder press and apple-mill. A, B, the bottom or lower beam; C, D, the upper beam; 5, 6, 7, 8, 9, the uprights; 4, 4, e, e, spurs; Z, 2, 12, braces, or cross-pieces; a, b, capitals; X, blocks; g, the screw; E, the back or receiver; F, the cheese or cake of pummice, placed on the stage or bafon; G, the stage or bafon; 10, 10, beams that support the pieces of which the

bafon is composed; 11, perpendicular pieces for supporting these beams; H, the buckler; R, S, Q, a circular trough of the apple-mill; T, L, V, compartments or divisions, for different sorts of apples; M, the mill-stone; L, M, axis of the mill-stone; N, the spring-tree bar.

CYDER-Spirit, a spirituous liquor drawn from cyder by distillation, in the same manner as brandy from wine. The particular flavour of this spirit is not the most agreeable, but it may with care be divested wholly of it, and rendered a perfectly pure and insipid spirit upon rectification. The traders in spirituous liquors are well enough acquainted with the value of such a spirit as this: they can give it the flavours of some other kinds, and sell it under their names, or mix it in large proportion with the foreign brandy, rum, and arrack, in the sale, without any danger of a discovery of the cheat.

CYDER-Wine. See *AGRICULTURE Index*.

CYDERKIN. See *AGRICULTURE Index*.

CYDIAS, a painter who made a painting of the Argonauts in the 11th Olympiad. This celebrated piece was brought by the orator Hortensius for 164 talents.

CYDNUS, in *Ancient Geography*, a river of Cilicia; rising in Mount Taurus, to the north of Tarsus, through whose middle it ran, in a very clear and cold stream, which had almost proved fatal to Alexander on bathing in it; falling into the sea at a place called Rhagma, a breach, the sea breaking in there, and affording the people of Tarsus a station or port for their ships. The water of the Cydnus is commended by Strabo, as of service in nervous disorders and the gout.

CYDONIA, in *Ancient Geography*; one of the three most illustrious cities of Crete, situated in the north-west of the island, with a locked port, or walled round. The circumstances of the founding of Cydon are uncertain. Stephen of Byzantium says, that it was at first named Apollonia from Cydon the son of Apollo. Pausanias ascribes the founding of it to Cydon the son of Tegetus, who travelled into Crete. Herodotus affirms, that it was founded by the Samians, and that its temples were erected by them. Alexander, in the first book of the Cretans, informs us, that it received its name from Cydon the son of Mercury. Cydon was the largest city in the island; and was enabled to hold the balance between her contending neighbours. She sustained some famous sieges. Phaleucus, general of the Phocians, making an expedition into Crete with a fleet and a numerous army, invested Canea both by sea and land; but lost his army and his life before its walls. In succeeding times, when Metellus subdued the island, he assailed Cydon with all his forces; and after combating an obstinate resistance, subjected it to the power of Rome. Cydon occupied the present situation of Canea; only extending half a league farther towards St Odero; where on the sea-shore the remains are still to be seen of some ancient walls which appear to have been of a very solid construction. See *CANEA*.

CYDONIA, the *QUINCE*; so called from Cydon, a town of Crete, famous for its abounding with this fruit. Linnæus has joined this genus to the apple and pear; but as there is such a remarkable difference be-

Cyder-spirit
||
Cydonia.

Cydonia
||
Cymbal.

tween the fruits, Mr Miller, treats the quince as a genus by itself. The species are, 1. The oblonga, with an oblong fruit, lengthened at the base. 2. The maliforma, with oval leaves, woolly on their upper side, with some other varieties. The Portugal quince is the most valuable; its pulp turns to a fine purple when stewed or baked, and becomes much softer and less austere than the others; so is much fitter for making marmalade. The trees are all easily propagated, either by layers, suckers, or cuttings; which must be planted in a moist soil. Those raised from suckers are seldom so well rooted as those which are obtained from cuttings or layers, and are subject to produce suckers again in greater plenty; which is not so proper for fruit-bearing trees. These trees require very little pruning: the chief thing to be observed is, to keep their stems clear from suckers, and cut off such branches as cross each other: likewise all upright luxuriant shoots from the middle of the tree should be taken off, that the head may not be too much crowded with wood, which is of ill consequence to all fruit-trees. These sorts may also be propagated by budding or grafting upon stocks raised by cuttings; so that the best sorts may be cultivated this way in greater plenty than by any other method. These are also in great esteem to bud or graft pears upon; which for summer or autumn-fruits are a great improvement to them, especially those designed for walls and espaliers; for the trees upon these stocks do not shoot so vigorously as those upon free-stocks, and therefore may be kept in less compass, and sooner produce fruit: but hard winter fruits do not succeed so well upon these stocks, their fruit being subject to crack, and are commonly stony, especially all the breaking pears: therefore these stocks are only fit for melting pears and in a moist soil.

CYGNUS, the SWAN. See ANAS, ORNITHOLOGY Index.

CYGNUS, the Swan, in *Astronomy*, a constellation of the northern hemisphere, between Lyra and Cepheus. The stars in the constellation Cygnus, in Ptolemy's catalogue, are 19; in Tycho's 18; in Hevelius's 47: in the Britannic catalogue 81.

CYLINDER, in *Geometry*, a solid body supposed to be generated by the rotation of a parallelogram.

Rolling or Loaded CYLINDER, a cylinder which rolls up an inclined plane; the phenomena of which are explained under MECHANICS.

CYLINDROID, in *Geometry*, a solid body approaching to the figure of a cylinder, but differing from it in some respects, as having the bases elliptical, but parallel and equal.

CYLINDRUS, in *Natural History*; the name of a genus of shell-fish, of which there are many elegant and precious species.

CYMA, in *Botany*; the tender stalks which herbs send forth in the beginning of the spring, particularly those of the cabbage kind.

CYMA, or CYMATIUM, in *Architecture*, a member or moulding of the cornice, the profile of which is waved, that is, concave at top, and convex at bottom.

CYMBAL, (*κυμβαλον*), a musical instrument in use among the ancients. The cymbal was made of brass, like our kettle-drums, and, as some think, in their form, but smaller, and of different use. Ovid gives cymbals

the epithet of *genialia*, because they were used at weddings and other diversions.

Cassiodorus and Isidore call this instrument *acetabulum*, the name of a cup or cavity of a bone wherein another is articulated; and Xenophon compares it to a horse's hoof; whence it must have been hollow; which appears, too, from the figure of several other things denominated from it; as a basin, caldron, goblet, cask, and even a shoe, such as those of Empedocles, which were of brass.

In reality, the ancient cymbals appear to have been very different from our kettle-drums, and their use of another kind: to their exterior cavity was fastened a handle; whence Pliny compares them to the upper part of the thigh, and Rabanus to phials.

They were struck against one another in cadence, and made a very acute sound. Their invention was attributed to Cybele; whence their use in feasts and sacrifices: setting aside this occasion, they were seldom used but by dissolute and effeminate people. M. Lampe, who has written expressly on the subject, attributes the invention to the Curetes, or inhabitants of Mount Ida in Crete; it is certain these, as well as the Corybantes or guards of the kings of Crete, and those of Rhodes and Samothracia, were reputed to excel in the music of the cymbal.

The Jews had their cymbals, or at least instruments which translators render cymbals; but as to their matter and form, critics are still in the dark. The modern cymbal is a mean instrument, chiefly in use among vagrants, gypsies, &c. It consists of steel wire, in a triangular form, whereon are passed five rings, which are touched and shifted along the triangle with an iron rod held in the left hand, while it is supported in the right by a ring, to give it the freer motion. Durandus says, that the monks used the word *cymbal* for the cloister-bell, used to call them to the refectory.

CYME, in *Ancient Geography*, a city built by Pelops on his return from Greece. Cyme the Amazon gave it name, on expelling the inhabitants, according to Mela. Latin authors, as Nepos, Livy, Mela, Pliny, Tacitus, retain the appellation *Cyme*, after the Greek manner. It stood in Æolia, between Myrina and Phocæa (Ptolemy); and long after, in Peutinger's map, is set down nine miles distant from Myrina.—From this place was the Sibylla Cumæa, called *Erythraea*, from *Erythra*, "a neighbouring place." It was the country of Ephorus. Hesiod was a Cumean originally (Stephanus); his father coming to settle at Aſcra in Bœotia.

CYMENE, in *Botany*, a name given by the ancient Greeks to a plant with which they used to dye woollen stuffs yellow, and with which the women of those times used also to tinge the hair yellow, which was then the favourite colour. The *cymene* of the Greeks is evidently the same plant with the *lutea herba* of the Latins: or what is now called *dyers weed*. See RESEDA, BOTANY Index.

CYNÆGIRUS, an Athenian, celebrated for his extraordinary courage. He was brother to the poet Æschylus. After the battle of Marathon he pursued the flying Persians to their ships, and seized one of their vessels with his right hand, which was immediately severed by the enemy. Upon this he seized

Cymbal
||
Cynægirus.

Cynanche the vessel with his left hand, and when he had lost that also, he still kept his hold with his teeth.

CYNANCHE, in *Medicine*, a disease, in which the throat is inflamed and swelled to such a degree as sometimes to threaten suffocation. See *MEDICINE Index*.

CYNANCHUM, *BASTARD DOGSBANE*: A genus of plants, belonging to the pentandria class; and in the natural method ranking under the 30th order *Con-torta*. See *BOTANY Index*.

CYNARA, the *ARTICHOKE*: A genus of plants belonging to the syngenesia class. See *BOTANY Index*.

The varieties of the artichoke are propagated by slips or suckers, arising annually from the stool or root of the old plants in spring, which are to be taken from good plants of any present plantation in March or the beginning of April, and planted in the open quarter of the kitchen-garden, in rows five feet asunder: and they will produce artichokes the same year in autumn. It should, however, be remarked, that though artichokes are of many years duration, the annual produce of their fruit will gradually lessen in the size of the eatable parts after the third or fourth year, so that a fresh plantation should be made every three or four years. The cardoon is a very hardy plant, and prospers in the open quarters of the kitchen-garden. It is propagated by seed sown annually in the full ground in March: either in a bed for transplantation, or in the place where they are designed to remain. The plants are very large, so must stand at considerable distances from one another. By this means you may have some small temporary crops between the rows, as of lettuce, spinach, endive, cabbage, savoy, or brocoli plants. In the latter end of September, or in October, the cardoons will be grown very large, and their footstalks have acquired a thick substance; you must then tie up the leaves of each plant, to admit of earthing them closely all round for blanching, which will take up six or eight weeks; and thus the plants will come in for use in November and December, and continue all winter.

CYNÆUS, of Thessaly, the scholar of Demosthenes, flourished 275 years before Christ. Pyrrhus had so high an esteem for him, that he sent him to Rome to solicit a peace; and so vast was his memory, that the day after his arrival he saluted all the senators and knights by name. Pyrrhus and he wrote a Treatise of War, quoted by Tully.

CYNICS, a sect of ancient philosophers, who valued themselves upon their contempt of riches and state, arts and sciences, and every thing, in short, except virtue or morality.

The Cynic philosophers owe their origin and institution to Antisthenes of Athens, a disciple of Socrates; who being asked of what use his philosophy had been to him, replied, "It enables me to live with myself." Diogenes was the most famous of his disciples, in whose life the system of this philosophy appears in its greatest perfection. He led a most wretched life, a tub having served him for a lodging, which he rolled before him wherever he went. Yet he was nevertheless not the more humble on account of his ragged cloak, bag, and tub; for one day entering Plato's house, at a time when there was a splendid entertainment there for several persons of distinction, he jump-

ed upon a very rich couch in all his dirt, saying, "I trample on the pride of Plato." "Yes (replied Plato), but with great pride, Diogenes." He had the utmost contempt for all the human race; for he walked the streets of Athens at noon-day with a lighted lantern in his hand, telling the people, "He was in search of a man." Among many excellent maxims of morality, he held some very pernicious opinions: for he used to say, that the uninterrupted good fortune of Harpalus, who generally passed for a thief and a robber, was a testimony against the gods. He regarded chastity and modesty as weaknesses. Hence Laertius observes of him, that he did every thing openly, whether it belonged to Ceres or Venus; though he adds, that Diogenes only ran to an excess of impudence to put others out of conceit with it. But impudence was the characteristic of these philosophers; who argued, that what was right to be done, might be done at all times, and in all places. The chief principle of this sect in common with the Stoics, was, that we should follow nature. But they differed from the Stoics in their explanation of that maxim; the Cynics being of opinion, that a man followed nature that gratified his natural motions and appetites; while the Stoics understood right reason by the word nature.

CYNIC-SPASM, a kind of convulsion, wherein the patient imitates the howlings of dogs.

CYNIPS, a genus of insects belonging to the hymenoptera order. See *ENTOMOLOGY Index*.

CYNOCEPHALUS, in *Zoology*, the trivial name of a species of *SIMIA*. See *MAMMALIA Index*.

CYNOGLOSSUM, *HOUND'S TONGUE*; a genus of plants belonging to the pentandria class, and in the natural method ranking under the 41st order, *Asperifolia*. See *BOTANY Index*.

CYNOMETRY, in *Botany*; a genus of plants belonging to the decandria class, and in the natural method ranking with those of which the order is doubtful. See *BOTANY Index*.

CYNOMORIUM, in *Botany*, a genus of plants belonging to the monœcia class, and in the natural method ranking under the 50th order, *Amentacæ*. See *BOTANY Index*.

CYNOPHONTIS, in antiquity, a festival observed in the dog days at Argos, and so called *απο της κυνας φωνης*, i. e. from killing dogs; because it was usual on this day to kill all the dogs they met with.

CYNOREXY, an immoderate appetite, to the degree of a disease, called also *fames canina* and *bulimy*.

CYNOSARGES, a place in the suburbs of Athens, named from a white or swift dog, who snatched away part of the sacrifice offering to Hercules. It had a gymnasium, in which strangers or those of the half-blood performed their exercises; the case of Hercules, to whom the place was consecrated. It had also a court of judicature, to try illegitimacy, and to examine whether persons were Athenians of the whole or half blood. Here Antisthenes set up a new sect of philosophers called *Cynics*, either from the place, or from the snarling or the impudent disposition of that sect.

CYNOSCEPHALÆ, in *Ancient Geography*, a place in Thessaly near Scotussa; where the Romans, under Q. Flaminius, gained a great victory over Philip, son of Demetrius king of Macedon. These *Cynoscephalæ*

*Cynic-
spasm*
||
*Cynofce-
phææ*

Cynossēma phalæ are small tops of several equal eminences; named from their resemblance to dogs heads, according to Plutarch.

Cyphonism.

CYNOSSEMA, the tomb of Hecuba, on the promontory Mastusia, over against Sigeum, in the south of the Chersonesus Thracica; named either from the figure of a dog, to which she was changed, or from her sad reverse of fortune (Pliny, Mela).

CYNOSURA, in *Astronomy*, a denomination given by the Greeks to *ursa minor*, "the little bear," by which sailors steer their course. The word is formed of *κυνος*, q. d. the dog's tail. This is the constellation next our pole, consisting of seven stars; four whereof are disposed like the four wheels of a chariot, and three lengthwise representing the beam; whence some give it the name of the *chariot*, or *Charles's wain*.

CYNOSURA, *Cynofuræ*, or *Cynofuris*, in *Ancient Geography*, a place in Laconia; but whether maritime or inland, uncertain. Here Æsculapius, being thunderstruck, was buried (Cicero).

CYNOSURA was also the name of the promontory of Marathon in Attica, opposite to Eubœa.

CYNOSURA, in *Mythology*, a nymph of Ida in Crete. She nursed Jupiter, who changed her into a star which bears the same name. It is the same as the *ursa minor*.

CYNOSURUS, in *Botany*; a genus of plants belonging to the triandria class, and in the natural method ranking under the 4th order, *Gramineæ*. See **BOTANY Index**.

CYNTHIUS and **CYNTHIA**, in *Mythology*, surnames of Apollo and Diana, derived from *Cynthia*, the name of a mountain in the middle of the island of Delos.

CYNTHUS, in *Ancient Geography*, a mountain of the island Delos, so high as to overshadow the whole island. On this mountain Latona brought forth Apollo and Diana: hence the epithet *Cynthius* (Virgil), and *Cynthia*, (Lucan, Statius).

CYNURIA, or **CYNURIUS Ager**, in *Ancient Geography*, a district of Laconia, on the confines of Argolis. A territory that proved a perpetual bone of contention between the Argives and Spartans (Thucydides). For the manner of deciding the dispute, see **THYREA**.

CYPERUS, in *Botany*, a genus of plants belonging to the triandria class, and in the natural method ranking under the 3d order, *Calamariæ*. See **BOTANY Index**.

CYPHON, in antiquity, a kind of punishment used by the Athenians. It was a collar made of wood; so called because it constrained the criminal who had this punishment inflicted on him to bow down his head.

CYPHONISM, (*Cyphonismus*.) from *κυφον*, which has various significations; derived from *κυφος*, *crooked*; a kind of torture or punishment in use among the ancients.

The learned are at a loss to determine what it was. Some will have it to be that mentioned by St Jerome in his Life of Paul the Hermit, chap. 2. which consisted in smearing the body over with honey, and thus exposing the person, with his hands tied, to the warm sun to invite the flies and other vermin to persecute him.

CYPRÆA, or **COWRIE**, a genus of shells belonging to the order of *vermes testacea*. See **CONCHOLOGY Index**.

Cypræa
||
Cyprianus.

This genus is called *cypræa* and *venerea* from its being peculiarly dedicated to Venus, who is said to have endowed a shell of this genus with the powers of a *remora*, so as to impede the course of the ship which was sent by Periander tyrant of Corinth, with orders to emasculate the young nobility of Corcyra.

CYPRESS. See **CUPRESSUS**, **BOTANY Index**.

CYPRIANUS, **THASCIVS-CÆCILIVS**, a principal father of the Christian church, was born at Carthage in Africa, at the latter end of the second or beginning of the third century. We know nothing more of his parents than that they were Heathens; and he himself continued such till the last 12 years of his life. He applied himself early to the study of oratory; and some of the ancients, particularly Lactantius, inform us, that he taught rhetoric in Carthage with the highest applause. Cyprian's conversion is fixed by Pearson to the year 246; and was at Carthage, where, as St Jerome observes, he had often employed his rhetoric in the defence of paganism. It was brought about by one Cæcilius, a priest of the church of Carthage, whose name Cyprian afterwards took; and between whom there ever after subsisted so close a friendship, that Cæcilius at his death committed to Cyprian the care of his family. Cyprian was also a married man himself; but as soon as he was converted to the faith, he resolved upon state of continence, which was thought a high degree of piety, as not being yet become general. Being now a Christian, he was to give the usual proof of the sincerity of his conversion; and that was by writing against Paganism and in defence of Christianity. With this view he composed his piece *De Gratia Dei*, or "concerning the grace of God," which he addressed to Donatus. It is a work of the same nature with the Apologetic of Tertullian, and the Octavius of Minutius Felix. He next composed a piece *De Idolorum Vanitate*, or "upon the vanity of idols." Cyprian's behaviour, both before and after his baptism, was so highly pleasing to the bishop of Carthage, that he ordained him a priest a few months after. It was rather irregular to ordain a man thus in his very noviciate; but Cyprian was so extraordinary a person, and thought capable of doing such singular service to the church, that it seemed allowable in this case to dispense a little with the form and discipline of it. For besides his known talents as a secular man, he had acquired a high reputation of sanctity since his conversion; having not only separated himself from his wife, as we have observed before, which in those days was thought an extraordinary act of piety, but also consigned over all his goods to the poor, and given himself up entirely to the things of God. It was on this account no doubt, too, that when the bishop of Carthage died the year after, that is, in the year 248, none was judged so proper to succeed him as Cyprian. The quiet and repose which the Christians had enjoyed during the last 40 years, had, it seems, greatly corrupted their manners; and therefore Cyprian's first care, after his advancement to the bishopric, was to correct disorders and reform abuses. Luxury was prevalent among them; and many of their women were not so strict

Cyprus
||
Cyprus.

Cyprus.

as they should be, especially in the article of drefs. This occasioned him to draw up his piece *De habitu virginum*, or "concerning the drefs of young women;" in which, befides what he fays on that particular head, he inculcates many leffons of modefty and fobriety. In the year 249, the emperor Decius began to iffue out very fevere edicts againft the Chriftians, which particularly affected thofe upon the coaft of Africa; and in the beginning of 250, the Heathens, in the circus and amphitheatre of Carthage, infifted loudly upon Cyprian's being thrown to the lions: a common method of destroying the primitive Chriftians. Cyprian upon this withdrew from the church at Carthage, and fled into retirement, to avoid the fury of the perfecutions. He wrote, in the place of his retreat, pious and inftructive letters to thofe who had been his hearers; and alfo to the *libellatici*, a name by which thofe puftillanious Chriftians were called, who procured certificates of the Heathen magiftrates, to fhew that they had complied with the emperor's orders in facrificing to idols. At his return to Carthage, he held feveral councils on the repentance of thofe who had fallen during this perfecution, and other points of difcipline; he oppofed the fchemes of Novatus, and Novatianus; and contended for the rebaptizing of thofe who had been baptized by heretics. At laft he died a martyr in the perfecution of Valerian and Gallienus, in 258. Cyprian wrote 81 letters, and feveral treatifes. The beft edition of his works are thofe of Pamelius in 1568; of Rigaltius in 1648; and of Oxford in 1682. His works have all been tranflated into Englifh by Dr Marfhall.

CYPRINUS, a genus of fifhes, belonging to the order of abdominales. See *ICHTHYOLOGY Index*.

CYPRIPEDIUM, the *LADY'S SLIPPER*; a genus of plants belonging to the gynandria clafs, and in the natural method ranking under the 7th order, *Orchideæ*. See *BOTANY Index*.

CYPRUS, an ifland fituated in the Levant, or moft eafterly part of the Mediterranean fea, between 33 and 36 degrees of eaft longitude, and 30 and 34 of north latitude. In ancient times this ifland was known by the names of Acamis, Ceraftis, Afpalia, Amathus, Macaria, Cryptos, Colinia, Sphecia, Paphia, Salamina, Arofa, and Cyprus. The etymologies of thefe names are neither very eafily found, nor are they of much importance. The name by which it was moft generally known is that of *Cyprus*, faid to be derived from *cypros*, the name of a fhrub or tree with which the ifland abounds; fuppofed to be the cyprefs.

Cyprus, according to Eratofthenes, was firft difcovered by the Phœnicians, two or three generations before the days of Alterius and Minos, kings of Crete; that is, according to Sir Ifaac Newton's computation, 2006 years before the Chriftian era. It was at that time fo full of wood that it could not be tilled, and the Phœnicians firft cut down that wood for melting copper, with which the ifland abounded; and afterwards, when they began to fail without fear on the Mediterranean, that is, after the Trojan war, they built great navies of the wood produced on this ifland. Jofephus, however, informs us, that the descendants of *Cittim*, the fon of Javan, and grandfon of Japhet, were the original inhabitants of Cyprus. According to his account, *Cittim*, feeing his brother Tarhifh fettled in

Cilicia, where he built the city of Tarfus, fettled with his followers in this oppofite ifland; and either he or his descendants laid the foundation of the city of *Cittim*, which according to Ptolemy, was the moft ancient in the ifland. As Cyprus was too narrow to contain the great numbers who attended him, he left here as many as might feive to people the country, and with the reft paffed over to Macedon.

The ifland of Cyprus was divided among feveral petty kings till the time of Cyrus the Great. He fubdued them all; but left each in poffeffion of his kingdom, obliging them only to pay him an annual tribute, and to fend fupplies of men, money, and fhips, when required. The Cyprian princes lived thus fubject to the Perfians till the reign of Darius Hyftafpes, when they attempted to fhake off the yoke, but with bad fuccefs; their forces being entirely defeated, and themfelves again obliged to fubmit. They made another more fucceffful attempt about the year before Chrift 357; but, however, could never totally free themfelves from their fubjection. It is very probable that they fubmitted to Alexander the Great, though hiftorians are filent as to that event. On the death of the Macedonian conqueror, the dominion of Cyprus was difputed by Antigonus and Ptolemy the fon of Lagus. At laft Antigonus prevailed, and the whole ifland fubmitted to him about 304 years before Chrift. He and his fon Demetrius kept poffeffion of it for 11 years, when it was recovered by Ptolemy, and quietly poffeffed by him and his descendants till 58 years before Chrift, when it was moft unjuftly feized by the Romans. In the time of Auguftus, it began to be ranked among the præconfular provinces, and to be governed by magiftrates fent thither by the fenate. In the year 648 it was conquered by the Saracens; but recovered by the Romans in 957. They held it, however, but for a very fhort time, and the barbarians kept poffeffion of it till the time of the croifades. It was then reduced by the croifaders; and Richard I. of England gave it to the princes of the Luſignan family, who held it till the year 1570. They divided it into 12 provinces, in each of which was a capital city from which the province was denominated. So confiderable was the ifland at this time, that befides the cities above-mentioned, and others of lefs note, it contained 800 villages. In 1570 it was taken by the Turks, and though it hath ever fince continued under their tyrannical yoke, is ftill fo confiderable as to be governed by a beglerbeg, and feven ſanguis under him.

The air in this ifland is for the moft part very unwholefome, on account of the many fens and marſhes with which the country abounds. The foil is an excellent fertile clay; and would produce all the neceffaries of life in abundance, if properly cultivated. There are but few fprings or rivers in this ifland; fo that when the rains do not fall plentifully at the uſual feafons, the inhabitants are much diftreffed by the ſcarcity of water. By reaſon of the uncultivated ſtate of the country, they are alfo greatly infeſted with poifonous reptiles of various kinds. The people are extremely ignorant and lafcivious, as indeed they are remarked to have been from the remotefſ antiquity. Anciently the worſhip of Venus was eſtabliſhed in this ifland, whence her title among the poets of the *Cyprian queen*; and ſuch an inclination had the inhabitants to

Cyrano
||
Cyrenaica

become the votaries of this goddess, both in theory and practice, that the young women used to prostitute themselves in her temple in order to raise themselves portions. Nor are their successors said to be much better at this day. The exports of the island are silks, oil, cotton, wine, salt, and turpentine: the imports are French and Venetian broad cloths; and sometimes a few bales of English manufacture, cutlery wares, sugar, tin, lead, &c.

Knights of Cyprus, an order instituted by Guy de Lusignan, titular king of Jerusalem, to whom Richard I. of England, after conquering this island, made over his right.

CYRANO, BERGERAC, a French author, born in Gascony, about the year 1620. He first entered into the army, where his natural courage engaged him frequently in duels in the quality of a second; which, with other rash actions, procured him the title of the *Intrepid*. But the little prospect he saw of preferment made him renounce the trade of war for the exercise of wit. His comic histories of the states and empires in the sun and moon, show him well acquainted with the Cartesian philosophy, and to have a lively imagination. Our Lord Orrery classes him with Swift for his turn of humour, which he says the latter adopted and pursued.

CYRENAICA, an ancient kingdom of Africa, corresponding to the present kingdom and desert of Barca and Tripoli. It was originally inhabited by a number of barbarous nations, differing little from great gangs of robbers. Afterwards some colonies from Greece settled here, and Cyrenaica became so powerful a state, that it waged war with Egypt and Carthage, often with success. In the time of Darius Hystaspes, Arcefilaus, the reigning prince in Cyrenaica, was driven from the throne: on which his mother Pheretima applied for assistance to the king of Cyprus. Her son afterwards returning to Barca, the chief city of Cyrene, was there assassinated, together with his father-in-law. Pheretima finding herself disappointed by the king of Cyprus, applied to Darius Hystaspes, and by the assistance of the Persians reduced Barca. Here she behaved with the utmost cruelty, causing all those who had been concerned in her son's death to be impaled, and the breasts of their wives to be cut off and affixed near them. She is said to have been afterwards devoured by worms; which was looked upon as a divine judgment for her excessive cruelty. The prisoners in the mean time were sent to Darius, who settled them in a district of Bactria, from them called *Barca*. Cyrenaica, however, seems to have remained free till the time of Alexander the Great, who conquered it along with Egypt. Soon after his death the inhabitants recovered their liberty; but were in a short time reduced by Ptolemy king of Egypt. Under these kings it remained till Ptolemy Physcon made it over to his bastard son Apian, who in the 658th year of Rome left it by will to the Romans. The senate permitted all the cities to be governed by their own laws; and this immediately filled the country with tyrants, those who were most potent in every city or district endeavouring to assume the sovereignty of it. Thus the kingdom was thrown into great confusion; but Lucullus in a good measure restored the public tranquillity on his coming thither during the first Mithridatic war. It was

found impossible, however, totally to suppress these disturbances till the country was reduced to the form of a Roman province, which happened about 20 years after the death of Apian, and 76 before Christ. Upon a revolt, the city of Cyrene was ruined by the Romans; but they afterwards rebuilt it. In process of time it fell to the Arabs; and then to the Turks, who are the present masters of it.

CYRENAICS, a sect of ancient philosophers, so called from their founder Aristippus of Cyrene, a disciple of Socrates.

The great principle of their doctrine was, that the supreme good of man in this life is pleasure; whereby they not only meant a privation of pain, and a tranquillity of mind, but an assemblage of all mental and sensual pleasures, particularly the last.

Cicero makes frequent mention of Aristippus's school, and speaks of it as yielding debauchees. Three disciples of Aristippus, after his death, divided the sect into three branches; under which division it languished and sunk: the first called the *Hegesiac* school; the second the *Annicerian*; and the third the *Theodoran*; from the names of their authors.

CYRENE, in *Ancient Geography*, the capital of Cyrenaica, and one of the cities called *Pentapolis*, distant from Apollonia, its sea-port, 10 miles, situated on a plain, of the form of a table, according to Strabo: A colony of the Thereans. Though they were descendants of the Lacedaemonians, yet they differed from them in their turn of mind or disposition, applying themselves to philosophy; and hence arose the Cyrenaic sect, at the head of which was Aristippus, who placed all happiness in pleasure. The Cyreneans were a people much given to aurigation, or the use of the chariot, from their excellent breed of horses, (Pindar, Ephorus, Strabo).

CYRIL, St, bishop of Jerusalem, succeeded Maximus in 350. He was afterward deposed for the crime of exposing to sale the treasures of the church, and applying the money to the support of the poor during a great famine. Under Julian he was restored to his see, and was firmly established in all his old honours and dignities under Theodosius; in which he continued unmolested to his death in 386. The remains of this father consist only of 23 catecheses, and one letter to the emperor Constantius.

CYRIL, St, patriarch of Alexandria, succeeded Theophilus, his uncle, in 412. Scarce was he installed, when he began to exert his authority with great rigour; he drove the Novatians and Jews from Alexandria, permitting their wealth and synagogues to be taken from them. This proceeding highly displeased Orestes, the governor of the city, who saw that if the bishop's authority was not soon suppressed, it might grow too strong for that of the magistrate. Upon which a kind of civil war broke out between Orestes and the bishop; many tumults were raised, and some battles fought in the very streets of Alexandria. St Cyril also distinguished himself by his zeal against Nestorius bishop of Constantinople, who, in some of his homilies, had asserted that the Virgin Mary ought not to be called the mother of God. The dispute at first proved unfavourable to Cyril, whose opinion was not only condemned, but himself deprived of his bishopric and thrown into prison. But he was soon after released, and

Cyrenaica
||
Cyril.

Cyrus. and gained a complete victory over Nestorius, who in 431 was deposed from his see of Constantinople. Cyril returned to his see at Constantinople, where he died in 444. St Cyril also wrote against Theodorus of Moplua, Diodorus of Tarsus, and Julian the apostate. He composed commentaries on St John's gospel, and wrote several other books. His works were published in Greek and Latin in 1638, in six volumes folio.

CYRUS, the son of Cambyfes the Persian, by Mandane the daughter of Astyages king of the Medes. The two chief historians, who have written the life of Cyrus, are Herodotus and Xenophon; but their accounts of him are different, in as much as the latter makes his father a king of Persia, and the former a meaner man. The account of Herodotus, as Dr Prideaux observes, indeed contains narratives that are much more strange and surprising, and consequently more diverting and agreeable to the reader: and for this reason more have chosen to follow him than Xenophon.

Herodotus informs us, that Astyages king of the Medes dreamed that a vine sprung from the womb of his daughter Mandane, the branches whereof overshadowed all Asia; whereupon having consulted the soothsayers, he was told that his dream portended the future power and greatness of a child who should be born of his daughter: and further that the same child should deprive him of his kingdom. Astyages, to prevent the accomplishment of this prediction, instead of marrying his daughter to some powerful prince, gave her to Cambyfes, a Persian of mean condition, and one who had no great capacity for forming any important design, nor for supporting the ambition of his son, by his own riches and authority. Nor did Astyages stop here: the apprehensions he was under lest Mandane's son might perhaps find that assistance in his own courage, or some lucky circumstances which his family was not able to supply him with, induced him to take a resolution of despatching the child, if there should be any. As soon, therefore, as he understood his daughter was with child, he commanded one of his officers, whose name was Harpagus, to destroy the infant as soon as it came into the world. Harpagus, fearing the resentment of Mandane, put the child into the hands of one who was the king's shepherd, in order to expose him. The shepherd's wife was so extremely touched with the beauty of Cyrus, that she desired her husband rather to expose her own son, who was born some time before, and preserve the young prince. After this manner Cyrus was preserved, and brought up among the king's shepherds.

One day, as the neighbouring children were at play together, Cyrus was chosen king; and having punished one of his little play fellows with some severity, for disobeying his commands, the child's parent complained of Cyrus to Astyages. This prince sent for young Cyrus, and observing something great in his air, his manner and behaviour, together with a great resemblance of his daughter Mandane, he made particular inquiry into the matter, and discovered that, in reality, Cyrus was no other than his grandson. Harpagus, who was the instrument of preserving him, was punished with the death of his own son: however, Astyages believing that the royalty which the soothsayers had

Cyrus. promised to the young prince, was only that which he had lately exercised among the shepherds children, troubled himself no more about it. Cyrus being grown up, Harpagus disclosed the whole secret of his birth to him, together with the manner wherein he had delivered him from the cruel resolution of his grandfather. He encouraged him to come into Media, and promised to furnish him with forces, in order to make him master of the country, and depose Astyages. Cyrus hearkened to these propositions, engaged the Persians to take up arms against the Medes, marched at the head of them to meet Astyages, defeated him, and possessed himself of Media. He carried on many other wars; and at length sat down before Babylon, which after a long siege he took.

The relation of Cyrus's life from Xenophon is as follows: Astyages king of Media married his daughter Mandane to Cambyfes king of Persia, son to Achæmenes king of the same nation. Cyrus was born at his father's court, and was educated with all the care his birth required. When he was about the age of 12 years, his grandfather Astyages sent for him to Media, together with his mother Mandane. Some time after, the king of Assyria's son having invaded Media, Astyages, with his son Cyaxares and his grandson Cyrus, marched against him. Cyrus distinguished himself in this war, and defeated the Assyrians. Cambyfes afterwards recalled him, that he might have him near his own person; and Astyages dying, his son Cyaxares, uncle by the mother's side to Cyrus, succeeded him in the kingdom of Media.

Cyrus, at the age of 30 years, was, by his father Cambyfes, made general of the Persian troops; and sent at the head of 30,000 men to the assistance of his uncle Cyaxares, whom the king of Babylon, with his allies the Cappadocians, Carians, Phrygians, Cilicians, and Paphlagonians, were preparing to attack. Cyaxares and Cyrus prevented them, by falling upon them and dispersing them. Cyrus advanced as far as Babylon, and spread terror throughout the country. From this expedition he retired to his uncle, towards the frontiers of Armenia and Assyria, and was received by Cyaxares in the tent of the Assyrian king whom he had defeated.

After this Cyrus carried the war into the countries beyond the river Halys, entered Cappadocia, and subdued it entirely. From thence he marched against Croesus king of Lydia, beat him in the first battle; then besieged him in Sardis his capital; and after a siege of fourteen days obliged him to surrender. See CROESUS. After this, Cyrus having reduced almost all Asia, repassed the Euphrates, and made war upon the Assyrians. He marched directly to Babylon, took it, and there prepared a palace for his uncle Cyaxares, whither he might retire, if at any time he had an inclination to come to Babylon; for he was not then in the army. After all these expeditions, Cyrus returned to his father and mother into Persia, where they were still living: and going some time after to his uncle Cyaxares into Media, he married his cousin the only daughter and heiress of all Cyaxares's dominions, and went with her to Babylon, from whence he sent men of the first rank and quality to govern all the several nations which he had conquered. He engaged again in several wars, and subdued all the nations

Cyrus.

which lie between Syria and the Red sea. He died at the age of 70 years, after a reign of 30: but authors differ very much concerning the manner of his death. Herodotus, Justin, and Valerius Maximus relate, that he died in the war against the Scythians; and that falling into an ambush which Queen Tomyris had laid for him, she ordered his head to be cut off, and cast into a vessel full of blood, saying, "Thou hast always thirsted after human blood, now glut thyself with it." Diodorus the Sicilian says, that he was taken in an engagement and hanged. Ctesias assures us, that he died of a wound which he received in his thigh: but by Xenophon's account he died peaceably in his bed, amidst his friends and servants; and certain it is, that in Alexander's time his monument was shown at Pasagarda in Persia.

From all this it is easy to conclude, that we are but imperfectly acquainted with the history of this great prince, the founder of the Persian, and destroyer of the Chaldean, empire. We learn fewer particulars of it from Scripture, but then they are more certain than any that we have produced. Daniel (viii. 3—20.) in the famous vision wherein God showed him the ruin of several great emperors, which were to precede the birth of the Messiah, represents Cyrus to us under the idea of "a ram, which had two horns; and the two horns were high, but the one was higher than the other, and the higher came up last. This ram pushed westward, and northward, and southward, so that no beasts might stand before him; neither was there any that could deliver out of his hand, but he did according to his will, and became great." The ram's two horns signify the two empires which Cyrus reunited in his person; that of the Medes, and that of the Persians. The last was greater and more powerful than the empire of the Medes; or otherwise, these two horns signify the two branches of Cyrus's successors. His son Cambyfes dying, the empire was transferred to Darius the son of Hytaspes, and was continued down to Darius Codomannus, who, as Calmet thinks, is the great horn which the he-goat, that denotes Alexander, run against. In chap. vii. 5. Daniel compares Cyrus to a bear, with three ribs in the mouth of it, to which it was said, "Arise, devour much flesh." Cyrus succeeded his father Cambyfes in the kingdom of Persia, and Darius the Mede, by Xenophon called Cyaxares, and Astyages in the apocryphal chapter (xiii. 1.) of Daniel, in the kingdom of the Medes and empire of Babylon. He was monarch of all the east; or as he speaks (2 Chr. xxxvi. 22, 23. and Ezr. i. 1, 2.) "of all the earth," when he permitted the Jews to return to their own country, in the year of the world 3466, before Jesus Christ 538. The enemies of the Hebrews, making use of this prince's affection to his own religion, prevailed with him to put a stop by his orders to the building of the temple at Jerusalem; (Ezra iv. 5.) The prophets frequently foretold the coming of Cyrus; and Isaiah (xlv. 28.) has been so particular as to declare his name 200 years before he was born. Josephus (Antiq. lib. ii. c. 2.) says, that the Jews of Babylon showed this passage of the prophet to Cyrus; and that this prince, in the edict which he granted them for their return, acknowledged that he received the empire of the world from the God of Israel; and that the

same God had described him by name in the writings of the prophets, and foretold that he should build a temple to him at Jerusalem. Cyrus is pointed out in Scripture under the name of the righteous man and the shepherd of Israel, (Isaiah xli. 2. 10. xlv. 11. and xlv. 28.) Notwithstanding this, God says of him (Isaiah xlv. 5.) "I girded thee, though thou hast not known me." And Jeremiah calls Cyrus and his people who overthrew the Babylonish empire, thieves and robbers. The taking of Babylon by Cyrus is clearly set down by the prophets, and may be seen under the articles **BABYLON** and **BELSHAZZAR**. Archbishop Usher fixes the birth of Cyrus to the year of the world 3405; his first year at Babylon to 3466, and his death to 3475. The eastern people will have it, that Cyrus by his mother's side was descended from some of the Hebrew prophets: as also that his wife was a Jew, which is the reason (say they) that this prince so attached himself to the Jews, to whom he was so nearly allied.

CYRUS II. was the younger son of Darius Nothus, and the brother of Artaxerxes. He was sent by his father at the age of 16 to assist the Lacedæmonians against Athens. Artaxerxes succeeded to the throne at the death of Nothus; and Cyrus, who was of an aspiring soul, attempted to assassinate him. He was discovered, and had been punished with death, had not his mother Parysatis saved him from the hands of the executioner by her tears and entreaties. This circumstance did not in the least check the ambition of Cyrus; he was appointed over Lydia and the sea-coasts, where he secretly fomented rebellion and levied troops under various pretences. At last he took the field with an army of 100,000 barbarians, and 13,000 Greeks under the command of Clearchus. Artaxerxes met him with 900,000 men near Cunaxa. The battle was long and bloody; and Cyrus might have perhaps obtained the victory, had not his uncommon rashness proved his ruin. It is said that the two royal brothers met in person, and their engagement ended in the death of Cyrus, 401 years before the Augustan age. Artaxerxes was so anxious of its being universally reported that his brother had fallen by his hand, that he put to death two of his subjects for boasting that they had killed Cyrus. The Greeks, who were engaged in the expedition, obtained much glory in the battle; and after the death of Cyrus they remained victorious in the field without a commander. They were not discouraged, though at the distance of above 600 leagues from their country, and surrounded on every side by a powerful enemy. They unanimously united in the election of commanders, and traversed all Asia, in spite of the continual attacks of the Persians; and nothing is more truly celebrated in ancient history than the bold retreat of the ten thousand. The journey that they made from the place of their first embarkation till their return, has been calculated at 1155 leagues, performed in the space of 15 months, including all the time which was devoted to take rest and refreshment. This retreat has been celebrated by Xenophon, who was one of their leaders, and among the friends and supporters of Cyrus.

CYST, the bag or tunic including all incysted tumors, as the scirrhus, atheroma, steatoma, meliceres, &c.

CYSTIC,

Cyrus.
Cyst.

Cyctic
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Czar.

CYSTIC, in *Anatomy*, a name given to two arteries and two veins.

CYSTIC *Duſt.* See *ANATOMY Index*.

CYTHERA, *-orum*, in *Ancient Geography*, an iſland oppoſite to Mallea, a promontory, and to Boiæ, a town of Laconia; with a cognominal town, which has an excellent port called *Scandea*. The iſland was ſacred to Venus, with a very ancient temple of that goddeſs exhibited in armour at Cythera, as in Cyprus: now *Cerigo*.

CYTHEREA, in *Mythology*, the ſurname of Venus, ſo called from Cythera an iſland, where ſhe had a temple eſteemed the moſt ancient in Greece, and on the ſhores of which ſhe was believed to be borne by the Zephyrs, ſurrounded by the Loves, the Tritons, and Nereides, reclining in a languiſhing poſture in a ſea-ſhell. They give the name of Cytheriades to the Graces which attended her on the ſhore without quitting her, except on thoſe occaſions when ſhe rather choſe to be waited upon by the Pleaſures.

CYTINUS, a genus of plants belonging to the gynandria claſs; and in the natural method ranking under the 11th order, *Sarmentaceæ*. See *BOTANY Index*.

CYTISUS, TREE TREFOIL, a genus of plants belonging to the diadelphica claſs, and in the natural method ranking under the 32d order, *Papilionaceæ*. See *BOTANY Index*.

CYZICENS, CYZICENA, among the ancient Greeks, were a ſort of magnificent banqueting houſes, always looking toward the north, and uſually opening upon gardens.

They had their name from Cyzicus, a city very conſiderable for the grandeur of its buildings; ſituated in an iſland of Myſia, bearing the ſame name.

CYZICUM, or CYZICUS, in *Ancient Geography*, one of the nobleſt cities of the Hither Aſia; ſituated in a cognominal iſland of the Propontis, on the coaſt of Myſia; joined to the continent by two bridges (Strabo); the firſt by Alexander: the city, a colony of the Milesians (Pliny). Rendered famous by the ſiege of Mithridates; which was raiſed by Lucullus.—The inhabitants were made a free people by the Romans, but forfeited their freedom under Tiberius. It was adorned with a citadel and walls round it; had a port and marble towers; and three magazines, one for arms, another for warlike engines, and a third for corn. Cyziceni, the people; noted by the ancients for their timidity and effeminaſy: hence the proverb in Zenodotus and others, *Tinctura Cyzenica*, applied to perſons guilty of an indecency through fear; but *Statere Cyziceni, nummi Cyziceni*, denote things executed to perfection.

CZACK' THURN, a ſtrong town of Germany, in Auſtria, and near the frontiers of Hungary. It is ſeated between the rivers Drave and Muhir, in E. Long. 17. 19. N. Lat. 46. 24.

CZAR, a title of honour, aſſumed by the grand dukes, or, as they are now ſtyled, emperors of Ruſſia.

The natives pronounce it *tzar*, or *zaar*; and this, by corruption (it has been fancied), from *Cæſar*, “emperor,” from ſome imagined relation to the Roman emperors. But this etymology does not ſeem correct. When the czar Peter formerly required of the European courts an acknowledgment of his imperial titles,

and that the appellation of *Emperor* ſhould never be omitted, there was great difficulty made about it, eſpecially at the court of Vienna; which occaſioned him to produce the famous letter, written in the German tongue, from Maximilian I. emperor of Germany, to Vaſſili Ivanovitch, confirming a treaty of alliance offensive and defensive againſt Sigifmond king of Poland. In this diſpatch, which is dated Auguſt the 4th, 1514, and is ratified with the ſeal of the golden bull, Maximilian addreſſes Vaſſili by calling him *Kayſer* and *Herrſcher aller Ruſſen*, “emperor and ruler of all the Ruſſias.” But independently of this document, there could be no doubt that the foreign courts, in their intercourſe with that of Moſcow, ſtyled the ſovereigns indifferently *Great Duke*, *Czar*, and *Emperor*. With reſpect to England in particular, it is certain, that in Chancellor's Account of Ruſſia, ſo early as the middle of the 16th century, Ivan Vaſſilievitch II. is called *Lord and Emperor of all Ruſſia*; and in the Engliſh diſpatches, from the reign of Elizabeth to that of Anne, he is generally addreſſed under the ſame appellation. When the European powers, however, ſtyled the czar *Emperor of Moſcovy*, they by no means intended to give him a title ſimilar to that which was peculiar to the emperor of Germany; but they beſtowed upon him that appellation as upon an Aſiatic ſovereign, in the ſame manner as we now ſay the emperors of China and Japan. When Peter, therefore, determined to aſſume the title of emperor, he found no difficulty in proving that it had been conferred upon his predeceſſors by moſt of the European powers; yet when he was deſirous of affixing to the term the European ſenſe, it was conſidered as an innovation, and was productive of more negotiations than would have been requiſite for the termination of the moſt important ſtate affair. At the ſame time it occaſioned a curious controverſy among the learned, concerning the riſe and progreſs of the titles by which the monarchs of this country have been diſtinguiſhed. From their reſearches it appeared, that the early ſovereigns of Ruſſia were called great dukes, and that Vaſſili Ivanovitch was probably the firſt who ſtyled himſelf *tzar*, an expreſſion which in the Sclavonian language ſignifies *king*; and that his ſucceſſors continued to bear within their own dominions that title as the moſt honourable appellation, until Peter the Great firſt took that of *Povelitel*, or emperor. After many delays and objections, the principal courts of Europe conſented, about the year 1722, to addreſs the ſovereign of Ruſſia with the title of Emperor; without prejudice, nevertheless, to the other crowned heads of Europe.

CZASLAU, a town of Bohemia, and capital of a circle of the ſame name. Here is the higheſt tower in all Bohemia; and near this place the king of Pruſſia gained a victory over the Auſtrians in 1742. It is ſeated on the river Crudenka, in E. Long. 15. 33. N. Lat. 49. 50.

CZENSTOKOW, a town of Poland in the palatinate of Cracovia, with a fort, in which they keep a rich treaſure, called “the treaſure of the Virgin Mary.” The pilgrims flock hither ſo much for the ſake of a convent near it, that it is called the *Loretto* of Poland. The town is ſituated on the river Warta. E. Long. 19. 15. N. Lat. 50. 48.

Czar
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Czenſto-
kow.

CZERNIC,

Czernic, Czernikou. CZERNIC, a town of Carniola, in Austria, situated in E. Long. 15. 0. N. Lat. 46. 12. It is remarkable for its lake; for a particular description of which see the article CIRCHNITZER.

CZERNIKOU, a considerable town of Muscovy, and capital of a duchy of the same name, with a castle.

It is seated on the river Dezna, in E. Long. 32. 13. **Czongrodt.** N. Lat. 51. 20.

CZONGRODT, a town of Upper Hungary, and capital of a territory of the same name, at the confluence of the rivers Teisse and Keres. E. Long. 20. 57. N. Lat. 46. 50.

D.

D
||
Dacca.

D, THE fourth letter of the alphabet, and the third consonant.

Grammarians generally reckon D among the lingual letters, as supposing the tongue to have the principal share in the pronunciation thereof; though the Abbot de Dangeau seems to have reason in making it a palate letter. The letter D is the fourth in the Hebrew, Chaldee, Samaritan, Syriac, Greek, and Latin alphabets; in the five first of which languages it has the same name, though somewhat differently spoke, e. g. in Hebrew, Samaritan, and Chaldee *Daleth*, in Syriac *Doletb*, and in Greek *Delta*.

The form of our D is the same with that of the Latins, as appears from all the ancient medals and inscriptions, and the Latin D is no other than the Greek Δ, rounded a little, by making it quicker and at two strokes. The Δ of the Greeks, again, is borrowed from the ancient character of the Hebrew *Daleth*: which form it still retains, as is shown by the Jesuit Souciet, in his Dissertation on the Samaritan Medals.

D is also a numeral letter, signifying *five hundred*, which arises hence, that in the Gothic characters, the D is half the M, which signifies a *thousand*. Hence the verse.

Litera D velut A quingentos significabit.

A dash added a-top \bar{D} , denotes it to stand for *five thousand*.

Used as an abbreviation, it has various significations: thus D stands for Doctor; as, M. D. for Doctor of Medicine; D. T. Doctor of Theology; D. D. implies Doctor of Divinity, or "dono dedit;" D. D. D. is used for "dat, dicat, dedicat;" and D. D. D. D. for "dignum Deo donum dedit."

DAB, the English name of a species of PLEURO-NECTES. See ICHTHYOLOGY *Index*.

DABUL, a town of Asia, in the East Indies, on the coast of Malabar, and to the south of the gulf of Cambaye, on a navigable river. It was formerly very flourishing, but is now much decayed. It belongs to the Portuguese, and its trade consists principally in pepper and salt. E. Long. 72. 50. N. Lat. 17. 30.

DACCA, a town of Asia, in the kingdom of Bengal in the East Indies, situated in E. Long. 86. 10. N. Lat. 24. 0.—The advantages of the situation of this place, and the fertility of the soil round it, have long since made it the centre of an extensive commerce. The courts of Delhi and Muxadavad are furnished from thence with the cottons wanted for their own con-

sumption. They each of them maintain an agent on the spot to superintend the manufacture of them; and he has an authority, independent of the magistrate, over the brokers, weavers, embroiderers, and all the workmen whose business has any relation to the object of his commission. These unhappy people are forbidden, under pecuniary and corporeal penalties, to sell, to any person whatever, a piece exceeding the value of three guineas: nor can they, but by dint of money, relieve themselves from this oppression.

In this, as in all the other markets, the Europeans treat with the Moorish brokers settled upon the spot, and appointed by the government. They likewise lend their name to the individuals of their own nation, as well as to Indians and Armenians living in their settlements, who, without this precaution, would infallibly be plundered. The Moors themselves, in their private transactions, sometimes avail themselves of the same pretence, that they may pay only two, instead of five per cent. A distinction is observed, in their contracts, between the cottons that are bespoke and those which the weaver ventures, in some places, to manufacture on his own account. The length, the number of threads, and the price, of the former are fixed: nothing further than the commission for the latter is stipulated, because it is impossible to enter into the same detail. These nations that make a point of having fine goods, take proper measures that they may be enabled to advance money to their workmen at the beginning of the year. The weavers, who in general have but little employment at that time, perform their work with less hurry than in the months of October, November, and December, when the demand is pressing.

Some of the cottons are delivered unbleached, and others half bleached. It were to be wished that this custom might be altered. It is very common to see cottons that look very beautiful go off in the bleaching. Perhaps the manufacturers and brokers foresee how they will turn out; but the Europeans have not so exquisite a touch, nor such an experienced eye, to discern this. It is a circumstance peculiar to India, that cottons, of what kind soever they are, can never be well bleached and prepared but in the place where they are manufactured. If they have the misfortune to get damage before they are shipped for Europe, they must be sent back to the places from whence they came.

DACE, a species of CYPRINUS. See ICHTHYOLOGY *Index*.

This

Dachaw
||
Dacier.

This fish is extremely common in our rivers, and gives the expert angler great diversion. The dace will bite at any fly; but he is more than ordinarily fond of the stone caddis, or May fly, which is plentiful in the latter end of April and the whole month of May. Great quantities of these may be gathered among the reeds or sedges by the water-side; and on the hawthorn bushes near the waters. These are a large and handsome bait; but as they only last a small part of the year in season, recourse is to be had to the ant-fly. Of these the black ones found in large mole-hills or ant-hills are the best. These may be kept alive a long time in a bottle, with a little of the earth of the hill, and some roots of grass; and they are in season throughout the months of June, July, August, and September. The best season of all is when they swarm, which is in the end of July or beginning of August; and they may be kept many months in a vessel washed out with a solution of honey in water, even longer than with the earth and grass-roots in the vial; though that is the most convenient method with a small parcel taken for one day's fishing. In warm weather this fish very seldom refuses a fly at the top of the water; but at other times he must have the bait sunk to within three inches of the bottom. The winter fishing for dace requires a very different bait: this is a white maggot with a reddish head, which is the produce of the eggs of the beetle, and is turned up with the plough in great abundance. A parcel of these put in any vessel, with the earth they were taken in, will keep many months, and are an excellent bait. Small dace may be put into a glass jar with fresh water; and there preserved alive for a long time, if the water is properly changed. They have been observed to eat nothing but the animalcula of the water. They will grow very tame by degrees.

DACHAW, a town of Bavaria in Germany. It is pretty large, well built, and seated on a mountain, near the river Amber, 10 miles N. W. of Munich. Here the elector has a palace and fine gardens. E. Long. 11. 30. N. Lat. 48. 20.

DACIA, in *Ancient Geography*, a country which Trajan, who reduced it to a province, joined to Mœsia by an admirable bridge. This country lies extended between the Danube and Carpathian mountains, from the river Tibiscus, quite to the north bend of the Danube; so as to extend thence in a direct line to the mouth of the Danube and to the Euxine; on the north side, next the Carpatæ, terminated by the river Hierafus, now the Pruth; on the west by the Tibiscus or Teifs; comprising a part of Upper Hungary, all Transylvania and Wallachia, and a part of Moldavia. *Daci*, the people; a name which Strabo takes to be the same with the *Davi* of comedies; neighbours, on the west, to the *Getae*, an appellation common also in comedies. Josephus mentions a set of religious men among the *Daci*, whom he calls *Plisti*, and compares with the *Esseni*: of these *Plisti* no other author makes any mention. *Dacicus*, the epithet assumed by some emperors, (Juvenal). There was a *Dacia Aureliana*, a part of Illyricum, which was divided into the eastern and western; Sirmium being the capital of the latter, and *Sardica* of the former. But this belongs to the lower age.

DACIER, ANDREW, born at Castres in Upper

Languedoc, 1651, had a great genius and inclination for learning, and studied at Saumur under Tannegui le Fevre, then engaged in the instruction of his daughter, who proved afterwards an honour to her sex. This gave rise to that mutual tenderness which a marriage of 40 years could never weaken in them. The duke of Montausier hearing of his merit, put him in the list of commentators for the use of the Dauphin, and engaged him in an edition of Pompeius Festus, which he published in 1681. His edition of Horace, printed at Paris in ten vols 12mo, and his other works, raised him a great reputation. He was made a member of the academy of inscriptions in 1695. When the history of Louis XIV. by medals was finished, he was chosen to present it to his majesty; who being informed of the pains which he had taken in it, settled upon him a pension of 2000 livres, and appointed him keeper of the books of the king's closet in the Louvre. When that post was united to that of library-keeper to the king, he was not only continued in the privilege of his place during life, but the survivance was granted to his wife; a favour of which there had been no instance before. But the death of Madame Dacier in 1720, rendered this grant, which was so honourable to her, ineffectual. He died September 18. 1722, of an ulcer in the throat. In his manners, sentiments, and the whole of his conduct, he was a complete model of that ancient philosophy of which he was so great an admirer, and which he improved by the rules and principles of Christianity.

DACIER, *Anne*, daughter of Tannegui le Fevre, professor of Greek at Saumur in France. She early showed a fine genius, which her father cultivated with great care and satisfaction. After her father's death she went to Paris, whither her fame had already reached; she was then preparing an edition of Callimachus, which she published in 1674. Having shown some sheets of it to Mr Huet, preceptor to the dauphin, and to several other men of learning at the court, the work was so highly admired, that the duke of Montausier made a proposal to her of publishing several Latin authors for the use of the dauphin. She rejected this proposal at first, as a task to which she was not equal.—But the duke insisted upon it; so that at last he gained her consent; upon which she undertook an edition of Florus, published in 1674. Her reputation being now spread over all Europe, Christina, queen of Sweden, ordered Count Konigsmark to make her a compliment in her name: upon which Mademoiselle le Fevre sent the queen a Latin letter, with her edition of Florus; to which her majesty wrote an obliging answer, and not long after sent her another letter, to persuade her to abandon the Protestant religion, and made her considerable offers to settle at her court. In 1683 she married Mr Dacier; and soon after declared her design to the duke of Montausier and the bishop of Meaux of reconciling herself to the church of Rome, which she had entertained for some time: but as Mr Dacier was not yet convinced of the reasonableness of such a change, they retired to Castres in 1684, where they had a small estate, in order to examine the points of controversy between the Protestants and the Roman Catholics. They at last determined in favour of the latter, and made the public abjuration in 1685. After this, the king gave both husband and wife marks

Dacier.

Dactyl,
Dactyli.

of his favour. In 1693, she applied herself to the education of her son and daughter, who made a prodigious progress: the son died in 1694, and the daughter became a nun in the abbey of Longchamp. She had another daughter, who had united in her all the virtues and accomplishments that could adorn the sex; but she died at 18. Her mother has immortalized her memory in the preface to her translation of the Iliad. Madame Dacier was in a very infirm state of health the two last years of her life; and died, after a very painful sickness, August 17. 1720, aged 69. She was remarkable for her firmness, generosity, equality of temper, and piety.

DACTYL, (*dactylus*), a foot in the Latin and Greek poetry, consisting of a long syllable, followed by two short ones; as *carmine*.

Some say it is derived from *δακτυλος*, "a finger," because it is divided into three joints, the first of which is longer than the other two.

The dactyl is said to have been the invention of Dionysius or Bacchus, who delivered oracles in this measure at Delphos, before Apollo. The Greeks call it *πολιτικός*. The dactyl and spondee are the most considerable of the poetical feet; as being the measures used in heroic verse by Homer, Virgil, &c. These two are of equal time, but not equal motion. The spondee has an even, strong, and steady pace, like a trot: the dactyl resembles the nimbler strokes of a gallop.

DACTYLI *ΙΔΑΙ*; the *Fingers of Mount Ida*. Concerning these, Pagan theology and fable give very different accounts. The Cretans paid divine worship to them, as those who had nursed and brought up the god Jupiter; whence it appears, that they were the same as the Corybantes and Curetes. Nevertheless Strabo makes them different; and says, that the tradition in Phrygia was, that "the Curetes and Corybantes were descended from the Dactyli Idæi: that there were originally an hundred men in the island, who were called *Dactyli Idæi*; from whom sprang nine Curetes, and each of these nine produced ten men, as many as the fingers of a man's two hands; and that this gave the name to the ancestors of the Dactyli Idæi." He relates another opinion, which is, that there were but five Dactyli Idæi; who, according to Sophocles, were the inventors of iron: that these five brothers had five sisters, and that from this number they took the name of *Fingers of Mount Ida*, because they were in number ten: and that they worked at the foot of this mountain. Diodorus Siculus reports the matter a little differently. He says, "the first inhabitants of the island of Crete were the Dactyli Idæi, who had their residence on Mount Ida: that some said they were an hundred; others only five in number, equal to the fingers of a man's hand, whence they had the name of *Dactyli*: that they were magicians, and addicted to mystical ceremonies: that Orpheus was their disciple, and carried their mysteries into Greece: that the Dactyli invented the use of iron and fire, and that they had been recompensed with divine honours."

Diomedes the grammarian says, the Dactyli Idæi were priests of the goddess Cybele: called *Idæi*, because that goddess was chiefly worshipped on Mount Ida in Phrygia; and *Dactyli*, because that, to prevent Saturn from hearing the cries of infant Jupiter, whom

Cybele had committed to their custody, they used to sing certain verses of their own invention, in the Dactylic measure. See CURETES and CORYBANTES.

DACTYLIC, something that has a relation to dactyls.

Anciently there were dactylic as well as spondaic flutes, *tibiae dactylicae*. The dactylic flutes consisted of unequal intervals; as the dactylic foot does of unequal measures.

DACTYLIC *Verfes* are hexameter verses, ending in a dactyl instead of a spondee; as spondaic verses are those which have a spondee in the fifth foot instead of a dactyl.

An instance of a dactylic verse we have in Virgil;

*Bis patriæ cecidere manus; quin protinus omnia
Perlegerent oculis.*—ÆN. vi. 33.

DACTYLIOMANCY, (*Dactyliomantia*), a sort of divination performed by means of a ring. The word is composed of the Greek *δακτυλιος*, "ring," of *δακτυλος*, "a finger," and *μαντεία*, "divination."

Dactyliomancy consisted principally in holding a ring, suspended by a fine thread, over a round table, on the edge whereof were made divers marks with the twenty-four letters of the alphabet. The ring in shaking, or vibrating over the table, stopped over certain of the letters, which, being joined together, composed the answer required. But the operation was preceded and accompanied by several superstitious ceremonies; for first the ring was to be consecrated with a great deal of mystery: the person who held it was to be clad in linen garments to the very shoes; his head was to be shaved all round; and in his hand he was to hold vervain. And before he proceeded on any thing, the gods were first to be appeased by a formulary of prayers, &c. Ammianus Marcellinus gives the process at large in his 29th book.

DACTYLIS, *cock's-foot GRASS*, a genus of plants belonging to the triandria class; and in the natural method ranking under the 4th order, *Gramina*.

DACTYLS, the fruit of the palm-tree, more usually called *dates*.

DACTYLUS, a sort of dance among the ancient Greeks, chiefly performed, Hesychius observes, by the *athletæ*.

DACTYLUS, a name given by Pliny to the PHOLAS. See PHOLAS, *CONCHOLOGY Index*.

DADUCHI, in antiquity, priests of Ceres. That goddess having lost her daughter Proserpine, say mythologists, began to make search for her at the beginning of the night. In order to do this in the dark, she lighted a torch, and thus set forth on her travels throughout the world: for which reason it is that she is always seen represented with a lighted torch in her hand. On this account, and in commemoration of this pretended exploit, it became a custom for the priests, at the feasts and sacrifices of this goddess, to run about in the temple, with torches after this manner; one of them took a lighted torch from off the altar, and holding it with his hand, ran with it to a certain part of the temple, where he gave it to another, saying to him, *Tibi trado*: this second ran after the like manner to another part of the temple, and gave it to the third, and so of the rest. From this ceremony the priests became denominated *daduchi*, *δαδουχοι*, q. d.

Dædala,
Dædalus.

q. d. "torch-bearers;" from *das*, "an unctuous resinous wood, as pine, fir, &c." whereof the ancients made torches; and *εχω*, "I have, I hold."—The Athenians also gave the name *daduchus* to the high-priest of Hercules.

DÆDALA, a mountain and city of Lycia, where Dædalus was buried, according to Pliny.—Also two festivals in Bœotia, so called; one of them observed at Alalcomenos by the Platæans in a large grove, where they exposed in the open air pieces of boiled flesh, and carefully observed whither the crows that came to prey upon them directed their flight. All the trees upon which any of these birds alighted were immediately cut down, and with them statues were made, called *Dædala*, in honour of Dædalus. The other festival was of a more solemn kind. It was celebrated every 60 years by all the cities of Bœotia, as a compensation for the intermission of the smaller festivals, for that number of years, during the exile of the Platæans. Fourteen of the statues called *Dædala* were distributed by lot among the Platæans, Lebæans, Coroneans, Orchomenians, Thespians, Thebans, Tanagræans, and Chæroneans, because they had effected a reconciliation among the Platæans, and caused them to be recalled from exile about the time that Thebes was restored by Cassander the son of Antipater. During this festival a woman in the habit of a bridemaid accompanied a statue which was dressed in female garments, on the banks of the Eurotas. This procession was attended to the top of Mount Cithæron by many of the Bœotians, who had places assigned them by lot. Here an altar of square pieces of wood cemented together like stones was erected, and upon it were thrown large quantities of combustible materials. Afterwards a bull was sacrificed to Jupiter, and an ox or heifer to Juno, by every one of the cities of Bœotia, and by the most opulent that attended. The poorest citizens offered small cattle; and all these oblations, together with the Dædala, were thrown into the common heap and set on fire, and totally reduced to ashes. They originated in this: When Juno, after a quarrel with Jupiter, had retired to Eubœa, and refused to return to his bed, the god, anxious for her return, went to consult Cithæron king of Platæa, to find some effectual measure to break her obstinacy. Cithæron advised him to dress a statue in woman's apparel, and carry it in a chariot, and publicly to report it was Platæa the daughter of Asopus, whom he was going to marry. The advice was followed; and Juno, informed of her husband's future marriage, repaid in haste to meet the chariot, and was easily united to him, when she discovered the artful measures he made use of to effect a reconciliation.

DÆDALUS, an Athenian, son of Eupalamus, descended from Erichtheus king of Athens. He was the most ingenious artist of his age; and to him we are indebted for the invention of the wedge, and many other mechanical instruments, and the sails of ships. He made statues which moved of themselves, and seemed to be endowed with life. Talus his sister's son promised to be as great as himself by the ingenuity of his inventions; and therefore from envy he threw him down from a window and killed him. After the murder of this youth, Dædalus, with his son Icarus, fled from Athens to Crete, where Minos king of the

country gave him a cordial reception. Dædalus made a famous labyrinth for Minos, and assisted Pasiphae the queen to gratify her unnatural passion for a bull. For this action Dædalus incurred the displeasure of Minos, who ordered him to be confined in the labyrinth which he had constructed. Here he made himself wings with feathers and wax, and carefully fitted them to his body and that of his son, who was the companion of his confinement. They took their flight in the air from Crete: but the heat of the sun melted the wax on the wings of Icarus, whose flight was too high, and he fell into that part of the ocean which from him has been called the *Icarian sea*. The father, by a proper management of his wings, alighted at Cumæ, where he built a temple to Apollo, and thence directed his course to Sicily, where he was kindly received by Cocalus, who reigned over part of the country. He left many monuments of his ingenuity in Sicily, which still existed in the age of Diodorus Siculus. He was despatched by Cocalus, who was afraid of the power of Minos, who had declared war against him because he had given an asylum to Dædalus. The flight of Dædalus from Crete with wings is explained by observing that he was the inventor of sails, which in his age might pass at a distance for wings. He lived 1400 years before the Christian era. There were two statuaries of the same name; one of Sicyon, son of Patroclus; the other a native of Bithynia.

DÆMON, (*δαίμων*), a name given by the ancients to certain spirits or genii, which they say appeared to men, either to do them service or to hurt them.

The Greek word *δαίμων*, is derived (according to Plato, in his *Cratylus*, p. 398. *ed. Serrani*, vol. i. (from *δαίμων*, "knowing or intelligent;" but according to others from *δαίωμαι*, "to distribute," (see the Scholiast on Homer, *Il. i. ver. 222.*). Either of these derivations agrees with the office ascribed to dæmons by the ancient heathens, as the spirit intrusted with the inspection and government of mankind. For, according to the philosophers, dæmons held a middle rank between the celestial gods and men on earth, and carried on all intercourse between them; conveying the addresses of men to the gods, and the divine benefits to men. It was the opinion of many, that the celestial divinities did not themselves interpose in human affairs, but committed the entire administration of the government of this lower world to these subaltern deities: *Neque enim pro majestate deum caelestium fuerit, hæc curare; (Apuleius de deo Socratis, p. 677.)* *Curæ caelestium voluntate, numine, et auctoritate, sed dæmonum obsequio, et opera et ministerio fieri arbitrandum est; (Id. p. 675.)* Hence they became the objects of divine worship. "If idols are nothing," says Celsus (*apud Origen. cont. Gels. lib. viii. p. 393.*) "what harm can there be to join in the public festivals? If they are dæmons, then it is certain that they are gods, in whom we are to confide, and to whom we should offer sacrifices and prayers to render them propitious."

Several of the heathen philosophers held that there were different kinds of dæmons; that some of them were spiritual substances of a more noble origin than the human race, and that others had once been men.

But those dæmons who were the more immediate objects of the established worship among the ancient nations

Dæmon.

Dæmon. nations were human spirits, such as were believed to become dæmons or deities after their departure from their bodies. Plutarch teaches (*Vit. Romul.* p. 36. *ed. Paris*), "that according to a divine nature and justice, the souls of virtuous men are advanced to the rank of dæmons; and that from dæmons, if they are properly purified, they are exalted into gods, not by any political institution, but according to right reason." The same author says in another place (*de Is. et Osir.* p. 361.), "that Isis and Osiris were, for their virtue, changed from good dæmons into gods, as were Hercules and Bacchus afterwards, receiving the united honours both of gods and dæmons." Hesiod and other poets, who have recorded the ancient history or traditions on which the public faith and worship were founded, assert, that the men of the golden age, who were supposed to be very good, became dæmons after death, and dispensers of good things to mankind.

Though *dæmon* is often used in a general sense as equivalent to a *deity*, and is accordingly applied to *fate* or *fortune*, or whatever else was regarded as a god; yet those dæmons who were the more immediate objects of divine worship amongst the heathens, were human spirits; as is shown in Farmer on Miracles, chap. iii. sect. 2.

The word *dæmon* is used indifferently in a good and a bad sense. In the former sense, it was very commonly used among the ancient heathens. "We must not (says Mcnauder) think any dæmon to be evil, hurtful to a good life, but every god to be good." Nevertheless, those are certainly mistaken who affirm, that *dæmon* never signifies an evil being till after the times of Christ. Pythagoras held dæmons who sent diseases to men and cattle (*Diog. Laert. Vit. Pythagor.* p. 514, *ed. Amstel.*) Zaleucus, in his preface to his Laws (*apud Stobæum*, Sermon. 42.) supposes that an evil dæmon might be present with a man, to influence him to injustice. The dæmons of Empedocles were evil spirits, and exiles from heaven; (Plutarch *Περὶ τῆς ψυχῆς δαίμωνος*). And in his life of Dion (p. 958.), he says, "It was the opinion of the ancients that evil and mischievous dæmons, out of envy and hatred to good men, oppose whatever they do." Scarce did any opinion more generally prevail in ancient times than this, viz. that as the departed souls of good men became good dæmons, so the departed souls of bad men became evil dæmons.

It has been generally thought, that by *dæmons* we are to understand *devils*, in the Septuagint version of the Old Testament. Others think the word is in that version certainly applied to the ghosts of such dead men as the heathens deified, in Deut. xxxii. 17. Ps. cvi. 37. That *dæmon* often bears the same meaning in the New Testament, and particularly in Acts xvii. 18. 1 Cor. x. 21. 1 Tim. iv. 1. Rev. ix. 13. is shown at large by Mr Joseph Mede (*Works*, p. 623, *et seq.*) That the word is applied *always* to human spirits in the New Testament, Mr Farmer has attempted to show in his Essay on dæmoniacs, p. 208, *et seq.* As to the meaning of the word *dæmon* in the fathers of the Christian church, it is used by them in the same sense as it was by the heathen philosophers, especially the latter Platonists; that is, sometimes for departed human spirits, and at other times for such spirits as had never inhabited human bodies. In the fathers, indeed, the word

is more commonly taken in an evil sense, than in the ancient philosophers. Besides the two forementioned kinds of dæmons, the fathers, as well as the ancient philosophers, held a third, viz. such as sprang from the congress of superior beings with the daughters of men. In the theology of the fathers, these were the worst kind of dæmons.

Different orders of dæmons had different stations and employments assigned them by the ancients. Good dæmons were considered as the authors of good to mankind; evil dæmons brought innumerable evils both upon men and beasts. Amongst evil dæmons there was a great distinction with respect to the offices assigned them; some compelled men to wickedness, others stimulated them to madness. See DÆMONIAC.

Much has been said concerning the dæmon of Socrates. He pretended to his friends and disciples, and even declared to the world, that a friendly spirit, whom he called his *dæmon*, directed him how to act on every important occasion in his life, and restrained him from imprudence of conduct.

In contemplating the character of this great philosopher, while we admire him as the noblest patron of virtue and moral wisdom that appeared in the heathen world, we are naturally led to inquire, whether what he gave out concerning his dæmon were a trick of imposture, or the reverie of a heated imagination, or a sober and true account of a favour which heaven designed to confer on so extraordinary a man.

To ascertain in this case the object of our inquiries, is by no means so easy as the superficial thinker may be apt to imagine. When we consider the dignity of sentiment and simplicity of manners which Socrates displayed through the general tenor of his life, we cannot readily bring ourselves to think that he could be capable of such a trick of imposture. Nothing of the wildness of an enthusiast appears in his character; the modesty of his pretensions, and the respect which in his conversation and conduct he uniformly testified for the ordinary duties of social life, sufficiently prove that he was free from the influence of blind enthusiasm: we cannot infer, therefore, that, like the astronomer in Raselas, he was deceived with respect to his dæmon by an overheated imagination. It is no less difficult to believe, that God would distinguish a heathen in so eminent a manner, and yet leave him uninstructed in the principles of true religion. Surely, if ever scepticism be reasonable, it must be in such matters as the present.

Yet, if it be still insisted, that some one of these three notions concerning the dæmon of Socrates must be more probable than the others; we would rather esteem Socrates an enthusiast in this instance, than degrade him to the base character of an impostor, or suppose that a spiritual being actually revealed himself to the philosopher, and condescended to become his constant attendant and counsellor. People are often under the influence of an over-heated imagination with regard to some one thing, and cool and sober as to every thing else.

DÆMONIAC (from *dæmon*), a human being whose volition and other mental faculties are overpowered and restrained, and his body possessed and actuated by some created spiritual being of superior power.

Such seems to be the determinate sense of the word; but

Dæmon,
Dæmoniac

Definition.

² **Dæmoniac.** but it is disputed whether any of mankind ever were in this unfortunate condition.

² **Dispute concerning dæmoniacs.** It is generally agreed, that neither good nor evil spirits are known to exert such authority at present over the human race: but in the ancient heathen world, and among the Jews, particularly in the days of our Saviour, evil spirits at least are thought by many to have been more troublesome.

³ **Notions of the Greeks and Romans concerning possession.** The Greeks and Romans imagined, that their deities, to reveal future events, frequently entered into the prophet or prophets who was consulted, overpowered their faculties, and uttered responses with their organs of speech. Apollo was believed to enter into the Pythoness, and to dictate the prophetic answers received by those who consulted her. Other oracles besides that of Delphi were supposed to unfold futurity by the same machinery. And in various other cases, either malignant dæmons or benevolent deities were thought to enter into and to actuate human affairs. The *Lymphatici*, the *Ceriti*, the *Larvati*, of the Romans, were all of this description; and the Greeks, by the use of the word *δαίμωνιοι*, show that they referred to this cause the origin of madness. Among the ancient heathens, therefore, it appears to have been a generally received opinion, that superior beings entered occasionally into men, overpowered the faculties of their minds, and actuated their bodily organs. They might imagine that this happened in instances in which the effects were owing to the operation of different causes; but an opinion so generally prevalent had surely some plausible foundation.

⁴ **Of the Jews.** The Jews, too, if we may trust the sacred writings and Josephus, appear to have believed in dæmoniacal possession. The case of Saul may be recollected as one among many in which superior created beings were believed by the Jews to exert in this manner their influence over human life. The general tenor of their history and language, and their doctrines concerning good and evil spirits, prove the opinion of dæmoniacal possession to have been well known and generally received among them.

⁵ **Of mankind in general in the days of our Saviour.** In the days of our Saviour, it would appear that dæmoniacal possession was very frequent among the Jews and the neighbouring nations. Many were the evil spirits whom Jesus is related in the gospels to have ejected from patients that were brought unto him as possessed and tormented by those malevolent dæmons. His apostles too, and the first Christians, who were most active and successful in the propagation of Christianity, appear to have often exerted the miraculous powers with which they were endowed on similar occasions. The dæmons displayed a degree of knowledge and malevolence which sufficiently distinguished them from human beings: and the language in which the dæmoniacs are mentioned, and the actions and sentiments ascribed to them in the New Testament, show that our Saviour and his apostles did not consider the idea of dæmoniacal possession as being merely a vulgar error concerning the origin of a disease or diseases produced by natural causes.

The more enlightened cannot always avoid the use of metaphorical modes of expression; which, though founded upon error, have yet been so established in language by the influence of custom, that they cannot be suddenly dismissed. When we read in the book of

Joshua, that the sun on a certain occasion stood still, to allow that hero time to complete a victory; we easily find an excuse for the conduct of the sacred historian, in accommodating his narrative to the popular ideas of the Jews concerning the relative motions of the heavenly bodies. In all similar instances, we do not complain much of the use of a single phrase, originally introduced by the prevalence of some groundless opinion, the falsity of which is well known to the writer.

But in descriptions of characters, in the narration of facts, and in the laying down of systems of doctrine, we require different rules to be observed. Should any person, in compliance with popular opinions, talk in serious language of the existence, dispositions, declarations, and actions of a race of beings whom he knew to be absolutely fabulous, we surely could not praise him for candid integrity: we must suppose him to be either exulting in irony over the weak credulity of those around him, or taking advantage of their weakness, with the dishonest and the selfish views of an impostor. And if he himself should pretend to any connexion with this imaginary system of beings, and should claim, in consequence of his connexion with them, particular honours from his contemporaries; whatever might be the dignity of his character in all other respects, nobody could hesitate even for a moment to brand him as an impostor of the basest character.

Precisely in this light must we regard the conduct of our Saviour and his apostles, if the idea of dæmoniacal possession were to be considered merely as a vulgar error. They talked and acted as if they believed that evil spirits had actually entered into those who were brought to them as possessed with devils, and as if those spirits were actually expelled by their authority out of the unhappy persons whom they had possessed. They expected, they demanded too, to have their professions and declarations believed, in consequence of their performing such mighty works, and to be honoured as having thus triumphed over the powers of hell. The reality of dæmoniacal possession stands upon the same evidence with the gospel system in general.

⁷ **Reasonableness of this doctrine.** Neither is there any thing absurd or unreasonable in this doctrine. It does not appear to contradict those ideas which the general appearance of nature and the series of events suggest concerning the benevolence and wisdom of the Deity, and the counsels by which he regulates the affairs of the universe. We often fancy ourselves able to comprehend things to which our understanding is wholly inadequate: we persuade ourselves, at times, that the whole extent of the works of the Deity must be well known to us, and that his designs must always be such as we can fathom. We are then ready, whenever any difficulty arises to us, in considering the conduct of Providence, to model things according to our own ideas; to deny that the Deity can possibly be the author of things which we cannot reconcile; and to assert, that he must act on every occasion in a manner consistent with our narrow views. This is the pride of reason; and it seems to have suggested the strongest objections that have been at any time urged against the reality of dæmoniacal possession. But the Deity may surely connect one order of

Dæmoniac. his creatures with another. We perceive mutual relations and a beautiful connexion to prevail through all that part of nature which falls within the sphere of our observation. The inferior animals are connected with mankind, and subjected to their authority, not only in instances in which it is exerted for their advantage, but even where it is tyrannically abused to their destruction. Among the evils to which mankind have been subjected, why might not their being liable to dæmoniacal possession be one? While the Supreme Being retains the sovereignty of the universe, he may employ whatever agents he thinks proper in the execution of his purposes; he may either commission an angel or let loose a devil; as well as bend the human will, or communicate any particular impulse to matter.

All that revelation makes known, all that human reason can conjecture, concerning the existence of various orders of spiritual beings, good and bad, is perfectly consistent with, and even favourable to, the doctrine of dæmoniacal possession. It was generally believed through the ancient heathen world; it was equally well known to the Jews, and equally respected by them; it is mentioned in the New Testament in such language, and such narratives are related concerning it, that the gospels cannot well be regarded in any other light than as pieces of imposture, and Jesus Christ must be considered as a man who dishonestly took advantage of the weakness and ignorance of his contemporaries, if this doctrine be nothing but a vulgar error: it teaches nothing inconsistent with the general conduct of Providence; it is not the caution of philosophy, but the pride of reason, that suggests objections against this doctrine.

8
Arguments
of the Anti-
dæmonists.

9
The cases
in which
the Greeks
and Romans
supposed
dæmoniacal
possession,
were only
instances
of madness,
&c.

Those, again, who are unwilling to allow that angels or devils have ever intermeddled so much with the concerns of human life, urge a number of specious arguments in opposition to these.

The Greeks and Romans of old, say they, did believe in the reality of dæmoniacal possession. They supposed that spiritual beings did at times enter into the sons or daughters of men, and distinguish themselves in that situation by capricious freaks, deeds of wanton mischief, or prophetic enunciations. But in the instances in which they supposed this to happen, it is evident that no such thing took place. Their accounts of the state and conduct of those persons whom they believed to be possessed in this supernatural manner, show plainly that what they ascribed to the influence of dæmons were merely the effects of natural diseases. Whatever they relate concerning the *larvati*, the *cerriti*, and the *lymphatici*, shows that these were merely people disordered in mind, in the same unfortunate situation with those madmen and idiots and melancholy persons whom we have among ourselves. Festus describes the *Larvati* as being *furiosi et mente moti*. Horace says,

*Hellade percussa, Marius cum præcipitat se,
Cerritus fuit?*

10
The same
is true of
the dæmo-
niacs of the
New Tes-
tament.

Plato, in his *Timæus*, says, *εδως γρη ενους εφαιπιστα μαλινης ενθιουκ, αληθους*. Lucian describes dæmoniacs as lunatic, and as staring with their eyes, foaming at the mouth, and being speechless.

It appears still more evidently, that all the persons

spoken of as possessed with devils in the New Testament, were either mad or epileptic, and precisely in the same condition with the madmen and epileptics of modern times. The Jews, among other reproaches which they threw out against our Saviour, said, *He hath a devil, and is mad: why bear ye him?* The expressions *he hath a devil*, and *is mad*, were certainly used on this occasion as synonymous. With all their virulence, they would not surely ascribe to him at once two things that were inconsistent and contradictory. Those who thought more favourably of the character of Jesus, asserted concerning his discourses, in reply to his adversaries, *These are not the words of him that hath a demon*; meaning, no doubt, that he spoke in a more rational manner than a madman could be expected to speak. The Jews appear to have ascribed to the influence of dæmons, not only that species of madness in which the patient is *raving and furious*, but also *melancholy madness*. Of John, who secluded himself from intercourse with the world, and was distinguished for abstinence and acts of mortification, they said, *He hath a demon*. The youth, whose father applied to Jesus to free him from an evil spirit, describing his unhappy condition in these words, *Have mercy on my son, for he is lunatic and sore vexed with a demon; for oft times he falleth into the fire, and oft into the water*, was plainly epileptic. Every thing indeed that is related in the New Testament concerning dæmoniacs, proves that they were people affected with such natural diseases as are far from being uncommon among mankind in the present age. When the symptoms of the disorders cured by our Saviour and his apostles as cases of dæmoniacal possession, correspond so exactly with those of diseases well known as natural in the present age, it would be absurd to impute them to a supernatural cause. It is much more consistent with common sense and sound philosophy to suppose, that our Saviour and his apostles wisely, and with that condescension to the weakness and prejudices of those with whom they conversed, which so eminently distinguished the character of the Author of our holy religion, and must always be a prominent feature in the character of the true Christian, adopted the vulgar language in speaking of those unfortunate persons who were groundlessly imagined to be possessed with dæmons, though they well knew the notions which had given rise to such modes of expression to be ill-founded; than to imagine that diseases, which arise at present from natural causes, were produced in days of old by the intervention of dæmons, or that evil spirits still continue to enter into mankind in all cases of madness, melancholy, or epilepsy.

Besides, it is by no means a sufficient reason for receiving any doctrine as true, that it has been generally received through the world. Error, like an epidemical disease, is communicated from one to another. In certain circumstances, too, the influence of imagination predominates, and restrains the exertions of reason. Many false opinions have extended their influence through a very wide circle, and maintained it long. On every such occasion as the present, therefore, it becomes us to inquire, not so much how generally any opinion has been received, or how long it has prevailed, as from what causes it has originated, and on what evidence it rests.

When

Dæmoniaks

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Dagon.||
Inference
from the
analogy of
nature.

When we contemplate the frame of nature, we behold a grand and beautiful simplicity prevailing through the whole: Notwithstanding its immense extent, and though it contains such numberless diversities of being; yet the simplest machine constructed by human art does not display easier simplicity, or an happier connection of parts. We may therefore venture to draw an inference, by analogy, from what is observable of the order of nature in general to the present case. To permit evil spirits to intermeddle with the concerns of human life, would be to break through that order which the Deity appears to have established through his works; it would be to introduce a degree of confusion unworthy of the wisdom of Divine Providence.

Such are the most rational arguments that have been urged on both sides in this controversy. Perhaps the dæmonianists have the stronger probabilities on their side; but we will not presume to take upon ourselves the office of arbitrators in the dispute.

DÆMONIACS, in church history, a branch of the Anabaptists; whose distinguishing tenet is, that the devils shall be saved at the end of the world.

DAFFODIL. See NARCISSUS, BOTANY *Index*.

DAGELET, an island on the coast of Corea, discovered by La Perouse in the year 1787. It is about three leagues in circumference, and is encircled with steep rocks, excepting a few sandy creeks, which form convenient landing-places. The island is covered with fine trees; and at the time the French navigator visited it, some boats were found on the stocks of a Chinese construction. The workmen, who were supposed to be Corean carpenters, were employed upon them, but fled to the woods on the approach of the ships. La Perouse supposes that the island is uninhabited, and that these people go from Corea, and live there during the summer, for the purpose of building boats. The north-east point of this island is in N. Lat. 3. 15. E. Long. 129. 2. from Paris.

DAGHESTAN, a country of Asia, bounded by Circassia on the north, by the Caspian sea on the east, by Chirvein a province of Persia on the south, and by Georgia on the west. Its chief towns are Tarku and Derbent, both situated on the Caspian sea.

DAGNO, a town of Turkey in Europe, in Albania, with a bishop's see. It is the capital of the district of Ducagini, and is seated on the rivers Drino and Nero, near their confluence. It is 15 miles south-east of Scutari, and 15 north-east of Alessio. E. Long. 19. 48. N. Lat. 42. 0.

DAGO, or ДАГО, an island in the Baltic sea, on the coast of Livonia, between the gulf of Finland and Riga. It is of a triangular figure, and may be about 20 miles in circumference. It has nothing considerable but two castles, called *Dagger-wort* and *Paden*. E. Long. 22. 30. N. Lat. 58. 48.

DAGON, the false god of Ashdod*, or as the Greeks call it *Azotus*. He is commonly represented as a monster, half man and half fish; whence most learned men derive his name from the Hebrew *dag*, which signifies "fish." Those who make him to have been the inventor of *bread-corn*, derive his name from the Hebrew *Dagon*, which signifies *frumentum*; whence Philo Biblius calls him *Zeus Agæleios*, *Jupiter Aratrius*.

This deity continued to have a temple at Ashdod

during all the ages of idolatry to the time of the Maccabees; for the author of the first book of Maccabees tells us, that "Jonathan, one of the Maccabees, having beaten the army of Apollonius, Demetrius's general, they fled to Azotus, and entered into Bethdagon (the temple of their idol): but that Jonathan set fire to Azotus, and burnt the temple of Dagon and all those who had fled into it.

Dagon, according to some, was the same with Jupiter, according to others Saturn, according to others, Venus, and according to most, Neptune.

DAHALAC is the largest island in the Red sea, and is placed by Mr Bruce, who has given a minute description of it, between 15. 27. and 15. 54. N. Lat. It is a low, flat island, with a sandy soil, mixed with shells, and in summer destitute of every kind of herbage, excepting a small quantity of bent grass, which is barely sufficient to feed a few antelopes and goats. In many places the island is covered with extensive plantations of acacia trees, which rarely exceed eight feet in height, spreading wide, and turning flat at top, probably from the influence of the wind, which blows from the sea. No rain falls in Dahalac from the end of March to the beginning of October; but in the intermediate months there are heavy showers, during which the water is collected in a great number of artificial cisterns, to serve the inhabitants during the ensuing summer. Of these cisterns, which are said to be the work of the Persians, or, as some suppose, of the first Ptolemies, 370 yet remain, cut out of the solid rock.

The inhabitants of Dahalac are a simple, fearful, and inoffensive people. It is the only part of Arabia where no one is furnished with arms of any kind. After the rains fall, the grass springs up with great luxuriance, and then the goats give the inhabitants a copious supply of milk, which in winter is the principal part of their subsistence. The poorer sort live entirely on shell and other fish. The sole employment of the inhabitants is to work the vessels which trade to the different parts of the coast. Dahalac contains 12 villages or towns, each of which is surrounded with a plantation of *doom* trees. Of the leaves of this tree, which are of a glossy white when dried, the inhabitants make baskets of great beauty and neatness. This seems to be the only thing like manufacture in the island. Dahalac, as well as the other islands of the Red sea, is dependent upon Masuah. Each of the 12 villages furnishes a goat monthly to the governor, and every vessel putting in there for Masuah, pays him a pound of coffee, and every one from Arabia a dollar. These are his principal revenues. In the time of the Ptolemies, the pearl fishery in the vicinity of Dahalac flourished greatly, as well as another valuable fishery, namely, that of tortoises.

DAHOMY, or DAUMA, a powerful kingdom of Africa, on the coast of Guinea. Abomy, the modern capital, lies in N. Lat. 7. 59. This kingdom occurs in its true position, in the maps of Sanuto, Plancius, and Mercator, where Dawhee, the ancient capital, is denominated *Dauina*. In 1700, it was erased from the maps of Africa, and the existence of the ancient nation of Dauma denied, till 1727, when it emerged from obscurity, and became known by the conquests of the maritime states of Whidah and Ardra. Between

Dauma

Dahalac

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Dahomy.

* See 1 Sam. chap. v.

Dahomy. Dauma and Gago the lake Sigefmes, or Guarda, (which extends about 100 leagues from east to west, and 50 from north to south, which lies about 370 miles N. N. E. of Arada, and is represented as the source of various large rivers, which descend into the gulf of Guinea) is placed by Barbot and Snelgrave, who derived their authority from the native traders. It neither occurs in Edrifi nor Leo, though it is found in the maps to Rulcelli's edition of Ptolemy, in 1561. Dahomy is a fertile cultivated country; the soil is a deep rich reddish clay, intermixed with sand, scarcely containing a stone of the size of an egg in the whole country. It is extremely productive of maize, millet, beans, yams, potatoes, cassada, plantain, and the banana; indigo, cotton, tobacco, palm-oil, and sugar, are raised, as well as a species of black pepper. Bread, and a species of liquor, or rather diluted gruel, are formed of the lotus berry. Animals, both wild and tame, are numerous, and the lakes abound in fish. The maritime districts of Whidah and Ardra, before they were ruined by the Dahomans, were highly cultivated and beautiful.

The character of the Daumanese, or Dahomans, is original and strongly marked; they have retained peculiar manners, and have had little intercourse with either Europeans or Moors. They exhibit the germ of peculiar institutions and modifications of manners, that have appeared incredible to modern nations, when they perused the ancient records of the Egyptians, Hindus, and Lacedæmonians. Like the Lacedæmonians, they display a singular mixture of ferocity and politeness, of generosity and cruelty. Their conduct towards strangers is hospitable, without any mixture of rudeness or insult. Their appearance is manly, and their persons strong and active; and though they are less addicted to the practice of tatowing than their neighbours, their countenance rather displays ferocity than courage. Their government is the purest despotism; every subject is a slave; and every slave implicitly admits the right of the sovereign to dispose of his property and of his person. "I think of my king," said a Dahoman to Mr Norris, "and then I dare engage five of the enemy myself. My head belongs to the king, not to myself: if he please to send for it, I am ready to resign it; or if it be shot through in battle, I am satisfied—if it be in his service." This attachment continues unshaken, even when their nearest relations become the victims of the avarice or caprice of the king, and his enormities are always attributed to their own indiscretions. With this devoted spirit, the Dahoman rushes fearless into battle, and fights as long as he can wield his sabre.

The modern history of the Dahomans realizes all that history has recorded of ancient Lacedæmon, and of those Lacedæmonians of the north, the inhabitants of Jomsburgh, who were forbidden to mention the name of *Fear*, even in the most imminent dangers, and who proudly declared that they would fight their enemies, though they were stronger than the gods. Saxo relates, that when Frotho, king of Denmark, was taken prisoner in battle, he obstinately refused to accept of life, declaring, that the restoration of his kingdom and treasures could never restore his honour, but that future ages would always say, *Frotho has been taken by his enemy.*

The palace of the king of Dahomy is an extensive building of bamboo and mud-walled huts, surrounded by a mud-wall about 20 feet high, inclosing a quadrangular space of about a mile square. The entrance to the king's apartment, is paved with human skulls, the lateral walls adorned with human jaw-bones, with a few bloody heads intermixed at intervals. The whole building resembles a number of farm-yards, with long thatched barns and sheds for cattle, intersected with low mud-walls. On the thatched roofs, numerous human skulls are ranged at intervals, on small wooden stakes. In allusion to these, when the king issues orders for war, he only announces to his general, *that his house wants thatch*. In this palace, or *large house*, as it is termed by the Dahomans, above 3000 females are commonly immured, and about 500 are appropriated by each of the principal officers. From this injurious and detestable practice, originate many flagrant abuses; the population is diminished, the sources of private happiness destroyed, and the best feelings of human nature being outraged, the energies of passion are converted into bitterness and ferocity.

The religion of Dahomy is vague and uncertain in its principles, and rather consists in the performance of some traditionary ceremonies, than in any fixed system of belief, or of moral conduct. They believe more firmly in their amulets and fetiches, than in the deity; their national fetiche is *the Tiger*; and their habitations are decorated with ugly images, tinged with blood, stuck with feathers, besmeared with palm-oil, and bedaubed with eggs. As their ideas of deity do not coincide with those of Europeans, they imagine that their tutelary gods are different. "Perhaps," said a Dahoman chief to Snelgrave, "that god may be yours, who has communicated so many extraordinary things to white men; but as that God has not been pleased to make himself known to us, we must be satisfied with this we worship." The Dahomans manufacture and dye cotton-cloth, and form a species of cloth of palm-leaves. They are tolerably skilful in working in metals. The bards, who celebrate the exploits of the king and his generals, are likewise the historians of the country.

DAILLE, JOHN, a Protestant minister near Paris, was one of the most learned divines of the 17th century, and was the most esteemed by the Catholics of all the controversial writers among the Protestants. He was tutor to two of the grandsons of the illustrious M. Du Pleffis Mornai. M. Daille having lived 14 years with so excellent a master, travelled into Italy with his two pupils: one of them died abroad; with the other he saw Italy, Switzerland, Germany, Flanders, Holland, and England, and returned in 1621. He was received minister in 1623, and first exercised his office in the family of M. Du Pleffis Mornai; but this did not last long, for that lord died soon after. The memoirs of this great man employed M. Daille the following year. In 1625 he was appointed minister of the church of Saumur, and in 1626 removed to Paris. He spent all the rest of his life in the service of this last church, and composed several works. His first piece was his masterpiece, and an excellent work, of the Use of the Fathers, printed 1631. It is a strong chain of reasoning, which forms a moral demonstration against those who would have religious disputes decid-

Dairi
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Dalaca.

ed by the authority of the fathers. He died in 1670, aged 77.

DAIRI, or DAIRO, in the history of Japan, is the sovereign pontiff of the Japanese; or, according to Kämpfer, the hereditary ecclesiastical monarch of Japan. In effect, the empire of Japan is at present under two sovereigns, viz. an ecclesiastical one called the *dairo*, and a secular one who bears the title of *kubo*. The last is the emperor, and the former the oracle of the religion of the country.

DAIRY, in rural affairs, a place appropriated for the management of milk, and the making of butter, cheese, &c. See *AGRICULTURE Index*.

The dairy-house should always be kept in the neatest order, and so situated as that the windows or lattices never front the south, south-east, or south-west. Lattices are also to be preferred to windows, as they admit a more free circulation of the air than glazed lights possibly can do. It has been objected, that they admit cold air in winter and the sun in summer; but the remedy is easily obtained, by making a frame the size of or somewhat larger than the lattice, and constructing it so as to slide backward and forward at pleasure. Packthread strained across this frame, and oiled cap-paper pasted thereon, will admit the light, and keep out the sun and wind.

It is hardly possible in the summer to keep a dairy-house too cool; on which account none should be situated far from a good spring or current of water. They should be neatly paved either with red brick or smooth hard stone; and laid with a proper descent, so that no water may lodge. This pavement should be well washed in the summer every day, and all the utensils belonging to the dairy should be kept perfectly clean. Nor should we ever suffer the churns to be scalded in the dairy, as the steam that arises from hot water will injure the milk. Nor should cheese be kept therein, nor rennet for making cheese, nor a cheese-press be fixed in a dairy, as the whey and curd will diffuse their acidity throughout the room.

The proper receptacles for milk are earthen pans, or wooden vats or trundles; but none of these should be lined with lead, as that mineral certainly contains a poisonous quality, and may in some degree affect the milk: but if people are so obstinate as to persist in using them, they should never forget to scald them, scrub them well with salt and water, and to dry them thoroughly, before they deposit the milk therein. Indeed all the utensils should be cleaned in like manner before they are used; and if after this, they in the least degree smell sour, they must undergo a second scrubbing before they are fit for use.

DAIS, a genus of plants belonging to the decandria class; and in the natural method ranking under the 31st order, *Veprecule*. See *BOTANY Index*.

DAISY. See *BELLIS*, *BOTANY Index*.

DAKIR, in our statutes, is used for the twentieth part of a last of hides. According to the statute of 51 Hen. III. *De compositione ponderum et mensurarum*, a last of hides consists of twenty dakirs, and every dakir of ten hides. But by 1 Jac. cap. 33. one last of hides or skins is twelve dozen. See *DICKER*.

DALACA, an island of the Red sea, which is said to be very fertile, populous, and remarkable for a

pearl fishery. It is probably the same with DAHALAC, which see.

DALBERGIA, a genus of plants belonging to the diadelphia class.

DALEA, a province of Sweden, bounded on the north by Dalecarlia, on the east by the Wermeland and the lake Wener, on the south by Gothland, and on the north by Norway and the sea.

DALEBURG, a town of Sweden, and capital of the province of Dalea, seated on the western bank of the lake Wener, 50 miles north of Gottenburg. E. Long. 13. 0. N. Lat. 59. 0.

DALECARLIA, a province of Sweden, so called from a river of the same name, on which it lies, near Norway. It is divided into three parts, which they call *valleys*; and is about 175 miles in length and 100 in breadth. It is full of mountains, which abound in mines of copper and iron, some of which are of a prodigious depth. The towns are very small, and Idra is the capital. The inhabitants are rough, robust, and warlike: and all the great revolutions in Sweden had their rise in this province. The river rises in the Dofrine mountains, and, running south-east through the province, falls into the gulf of Bothnia.

DALECHAMP, JAMES, a physician, was born at Caen in Normandy, in 1513. He was distinguished for his industry in botany, as well as in other branches of literature. He wrote notes on Pliny's Natural History, and translated Athenæus into Latin. He added 30 plates of rare plants to the Dioscorides of Ruellius, printed in 1552. After his death appeared his "*Historia generalis Plantarum in xviii. libros digesta*," Lugd. 1587, two vols folio. In this work, which is said to have been the labour of 30 years, the author proposed to include all the botanical discoveries previous to his own time, as well as those which he had made himself in the vicinity of Lyons and the Alps. He also published editions of "Paulus Ægineta," and Cælius Aurelianus, with notes; a work on surgery, and another *De Peste*, lib. iii.

He practised physic at Lyons from 1552 to 1558, when he died, aged 75.

DALECHAMPIA, a genus of plants belonging to the monœcia class; and in the natural method ranking under the 38th order, *Tricocce*. See *BOTANY Index*.

DALEM, a town of the united provinces of Holland, and capital of a district of the same name. It was taken by the French in 1672, who demolished the fortifications. It is seated on the river Bervine, five miles north-east of Liege. E. Long. 5. 59. N. Lat. 50. 40.

D'ALEMBERT. See *ALEMBERT*.

DALKEITH, a town of Scotland, in Mid-Lothian, six miles south-east of Edinburgh; W. Long. 2. 20. N. Lat. 55. 50. It is the principal residence of the duke of Buccleugh, who has here a noble house and extensive parks. In this house, which at the time was the head quarters of General Monk, the restoration of Charles II. was planned.—The duke's eldest son has the title of Earl of Dalkeith. Here is a considerable corn market weekly on Thursdays, which supplies in part both Edinburgh and Glasgow.

DALMATIA, a province of Europe, bounded on the

Dalbergia
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Dalkeith.

Dalrymple. the north by Bosnia, on the south by the gulf of Venice, on the east by Servia, and on the west by Morlachia. Spalatro is the capital of that part belonging to the Venetians; and Ragusa, of a republic of that name; the Turks have a third, whose capital is Herzegovina. The air is wholesome, and the soil fruitful; and it abounds in wine, corn, and oil.

DALRYMPLE, SIR DAVID, a Scottish lawyer and judge, was born in Edinburgh, on the 28th October new style, 1726. His father was Sir James Dalrymple, of Hailes, Bart. and his mother Lady Christian Hamilton, a daughter of the earl of Hadington. His grandfather Sir David Dalrymple was the youngest son of the first Lord Stair, and is said to have been the ablest of that family, so much distinguished for ability. He was lord advocate for Scotland, in the reign of George I. and his son, Sir James had the auditorship of the exchequer for life. Sir David Dalrymple was bred at Eton school, where he was distinguished as a scholar, and remarkable as a virtuous and orderly youth; from thence he went to the university of Utrecht, where he remained till after the rebellion in 1746. He was called to the bar at Edinburgh, 23d February 1748; where he was much admired for the elegant propriety of the cases he drew. He did not attain indeed to the highest rank as a practising lawyer, but his character for sound knowledge and probity in the profession was great. He was appointed one of the judges of the Court of Session in the room of Lord Nesbit, March 6th 1776, with the warmest approbation of the public; and in May 1776, one of the lords commissioners of Justiciary, in the room of Lord Coalston, who resigned. He took his seat on the bench, according to the usage of the Court of Session, by the title of Lord Hailes, the name by which he is generally known among the learned of Europe. As a judge of the supreme civil and criminal courts, he acted in the view of his country; from which he merited, and obtained high confidence and approbation.

But he was not only conspicuous as an able and upright judge, and a sound lawyer; he was also eminent as a profound and accurate scholar; being a thorough master of classical learning, the belles lettres, and historical antiquities; particularly of his own country, to the study of which he was led by his profession. Indefatigable in the prosecution of the studies he cultivated, his time was sedulously devoted to the promotion of useful learning, piety, and virtue. Numerous are the works that have issued from his pen, all of them distinguished by uncommon accuracy, taste, and learning. Besides some occasional papers, both serious and humorous, of his composing, that appeared in the World; and a variety of communications, critical, and biographical, in the Gentleman's Magazine, and other publications of like nature; he allotted some part of his time to the illustration and defence of primitive Christianity. In the year 1771 he composed a very learned and ingenious paper, or law-case, in the disputed peerage of Sutherland. He was one of the trustees of the Lady Elizabeth, the daughter of the last earl; and being then a judge, the names of two eminent lawyers were annexed to it. In that case, he displayed the greatest accuracy of research, and the most profound knowledge of the antiquities and rules of descent, in this country; which he managed with

such dexterity of argument, as clearly to establish the right of his pupil, and to form a precedent, at the same time, for the decision of all such questions in future. In the year 1773, he published a small volume, entitled, "Remarks on the History of Scotland." These appeared to be the gleanings of the historical research which he was making at that time, and discovered his lordship's turn for minute and accurate inquiry into doubtful points of history, and at the same time displayed the candour and liberality of his judgement. This publication prepared the public for the favourable reception of the Annals of Scotland, in 2 vols 4to, the first of which appeared in 1776, and the second in 1779, and fully answered the expectations which he had raised. The difficulties attending the subject, the want of candour, and the spirit of party, had hitherto prevented our having a genuine history of Scotland, in times previous to those of Queen Mary; which had been lately written, in a masterly manner, by the elegant and judicious Dr Robertson. Lord Hailes carried his attention to the Scottish history, as far back as to the accession of Malcolm Canmore, in 1057, and his work contains the annals of 14 princes, from Malcolm III. to the death of David II. And happy it was that the affairs of Scotland attracted the talents of so able a writer, who to the learning and skill of a lawyer, joined the industry and curiosity of an antiquarian; to whom no object appears frivolous or unimportant, that serves to elucidate his subject. Lord Hailes has so well authenticated his work by references to historians of good credit, or deeds and writings of undoubted authority; and has so happily cleared it from fable, uncertainty, and conjecture, that every Scotman, since its appearance, has been able to trace back, with confidence in genuine memoirs, the history of his country, for 736 years, and may revere the memory of the respectable judge, who with indefatigable industry, and painful labour, has removed the rubbish under which the precious remains were concealed.

Lord Hailes at first intended, as appears by an advertisement prefixed to his work, to carry down his Annals to the accession of James I. but to the great disappointment of the public, he stopped short at the death of David II. and a very important period of our history still remains to be filled up by an able writer. Lord Hailes's Annals of Scotland, it is believed, stand unrivalled in the English language, for a purity and simplicity of style, an elegance, perspicuity, and conciseness of narration, that particularly suited the form of his work; and is entirely void of that false ornament and stately gait, which makes the works of some other writers appear in gigantic, but fictitious majesty. In 1786, Lord Hailes came forward with the excellent Dr Watson, and other writers in England, to repel Mr Gibbon's attack on Christianity, and published a 4to volume, entitled, "An Enquiry into the Secondary causes which Mr Gibbon has assigned for the rapid Progress of Christianity," in which there is a great display of literary acumen, and of zeal for the cause he espouses, without the rancour of theological controversy. This was the last work he sent from the press, except a few biographical sketches of eminent Scotchmen, designed as specimens of a *Biographia Scotica*, which he justly considered as a desideratum in our literature;

Dalrymple. terature; and which it is much to be regretted, the infirmities of age, increasing fast upon him, did not allow him to supply; for he was admirably qualified for the undertaking, not only by his singular diligence and candour, but from the uncommon extent and accuracy of his literary and biographical knowledge: in which, it is believed, he excelled all his contemporaries.

Although his lordship's constitution had been long in an enfeebled state, he attended his duty on the bench till within three days of his death, which happened on the 29th of November 1792, in the 66th year of his age. His lordship was twice married. By his first wife, Anne Brown, daughter of Lord Coalston, he left issue one daughter, who inherits the family estate. His second marriage, of which there is issue also one daughter) was to Helen Fergusson, youngest daughter of Lord Kilkerran, who survived him. Though our church does not encourage funeral discourses in general, because they are liable to much abuse, a very laudable endeavour was made, in these degenerate times, to render his lordship's pre-eminent talents and virtues a theme of instruction to mankind, in a sermon preached, soon after his death, in the church of Inveresk, by his learned friend, and venerable pastor, Dr Carlyle; from which we shall transcribe a summary view of his character as a judge, a scholar, a Christian, and a citizen. "His knowledge of the laws was accurate and profound, and he applied it in judgment with the most scrupulous integrity. In his proceedings in the criminal court, the satisfaction he gave to the public could not be surpassed. His abhorrence of crimes, his tenderness for the criminals, his respect for the laws, and his reverential awe of the Omniscient Judge, inspired him on some occasions, with a commanding sublimity of thought, and a feeling solemnity of expression, that made condemnation seem just, as the doom of Providence, to the criminals themselves, and raised a salutary horror of crimes in the breasts of the audience. Conscious of the dignity and importance of the high office he held, he never departed from the decorum that becomes that reverend character: which indeed it cost him no effort to support, because he acted from principle and sentiment, both public and private. Affectionate to his family and relations, simple and mild in his manners, pure and conscientious in his morals, enlightened and entertaining in his conversation; he left society only to regret, that, devoted as he was to more important employments, he had so little time to spare for intercourse with them. He was well known to be of high rank in the republic of letters, and his loss will be deeply felt through many of her departments. His labours in illustration of the history of his country, and many other works of profound erudition, remain as monuments of his accurate and faithful research for materials, and his sound judgment in the selection of them. Of his unfeigned piety and devotion, you have very often been witnesses where we now are. I must add, however, that his attendance on religious ordinances, was not merely out of respect to the laws, and for the sake of example, (motives which should never fail to have influence on persons of superior rank, for the most obvious reasons) but from principle and conviction, and the most conscientious regard to his duty; for he not only practised all the virtues and charities

Vol. VII. Part I.

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Dam.

in proof of his faith, but he demonstrated the sincerity of his zeal, by the uncommon pains he took to illustrate primitive Christianity, and by his elaborate and able defences of it against its enemies. His profound researches into history, and his thorough knowledge of the laws, made him perfectly acquainted with the progress of the constitution of Britain, from the first dawn of liberty in the common law of the land, and the trial by jury, which precede all written records, and afterwards in the origin and establishment of parliaments, through all its vicissitudes and dangers, till at last, by the blessing of divine Providence, which brought many wonderful events to concur to the same end, it was renewed, strengthened, and finally confirmed by the Revolution. It was this goodly and venerable fabric of the British constitution, which the deceased most respectable character contemplated with admiration and delight, (of late indeed with a mixture of anxiety and fear) as the temple of piety, as the genuine source of greater happiness and freedom, to a larger portion of mankind, than ever flowed from any government upon earth. Ill indeed can the times bear the loss of such an affectionate patriot, and able guardian of the laws of his country. But we must not murmur at the will of Providence, which in its mercy may have withdrawn the good man from the evil to come. In mercy, I say, to him, whose righteous spirit was so deeply grieved, when he saw the wicked rage, and the people imagine a vain thing." Such is the memorial which, in the hour of recent sorrow, followed this excellent man to the grave! Beside the works already mentioned, Lord Hailes published a great number of others, which consisted chiefly of re-editions and translation of old works, and editions of MS. papers.

DALTON, a town of Lancashire, in England. It is seated on the spring-head of a river, in a champaign country, not far from the sea; and the ancient castle is made use of to keep the records, and prisoners for debt in the liberty of Furnes. W. Long. 3. o. N. Lat. 54. 18.

DALTON, *John*, D. D. an eminent divine and poet, was the son of the Rev. Mr John Dalton, rector of Dean near Whitehaven in Cumberland, where he was born in 1709. He was educated at Queen's College, Oxford; and became tutor or governor to the Lord Beauchamp, only son of the earl of Hertford, late duke of Somerset; during which time he adapted Milton's admirable mask of Comus to the stage, by a judicious insertion of several songs and different passages selected from other of Milton's works, as well as of several songs and other elegant additions of his own, suited to the characters and to the manner of the original author. During the run of this piece he industriously sought out a grand-daughter of Milton's, who was then oppressed with age and poverty; and procured her a benefit from it, the profits of which amounted to a very considerable sum. He was promoted by the king to a prebend of Worcester; where he died on the 22d of July 1763. Besides the above, he wrote a descriptive poem, addressed to two ladies at their return from viewing the coal-mines near Whitehaven; and Remarks on 12 historical designs of Raphael, and the *Museum Græcum et Egyptiacum*.

DAM, a boundary or confinement, as to *dam up* or

H

dam

Damage
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Damascus.

dam out. *Infra damnum suum*, within the bounds or limits of his own property or jurisdiction.

DAMAGE, in *Law*, is generally understood of a hurt or hinderance attending a person's estate: but, in common law, it is a part of what the jurors are to inquire of in giving verdict for the plaintiff or defendant in a civil action, whether real or personal; for after giving verdict on the principal cause, they are likewise asked their consciences touching costs and damages, which contain the hinderances that one party hath suffered from the wrong done him by the other. See **COSTS**.

DAMAN, a maritime town of the East Indies, at the entrance into the gulf of Cambay. It is divided by the river Daman into two parts; one of which is called *New Daman*, and is a handsome town, well fortified, and defended by a good Portuguese garrison. The other is called *Old Daman*, and is very ill built. There is a harbour between the two towns, defended by a fort. It was taken by the Portuguese in 1535. The Mogul has attempted to get possession of it several times, but always without effect. E. Long. 72. 35. N. Lat. 21. 5.

DAMASCENUS, **JOHN**, an illustrious father of the church in the 8th century, born at Damascus, where his father, though a Christian, enjoyed the office of counsellor of state to the Saracen caliph; to which the son succeeded. He retired afterwards to the monastery of St Sabas, and spent the remainder of his life in writing books of divinity. His works have been often printed: but the Paris edition in 1712, two vols folio, is esteemed the best.

DAMASCIUS, a celebrated heathen philosopher, born at Damascus in the year 540, when the Goths reigned in Italy. He wrote the life of his master Isidorus; and dedicated it to Theodora, a very learned and philosophical lady, who had also been a pupil to Isidorus. In this life, which was copiously written, he frequently made oblique attacks on the Christian religion. We have nothing remaining of it but some extracts preserved by Photius. Damascius succeeded Theon in the rhetorical school, and Isidorus in that of philosophy, at Athens.

DAMASCUS, a very ancient city of Syria, in Asia, seated in E. Long. 47. 18. N. Lat. 35. 0. Some of the ancients suppose this city to have been built by one Damascus, from whom it took its name; but the most generally received opinion is, that it was founded by Uz the eldest son of Aram. It is certain, from Gen. xiv. 5. that it was in being in Abraham's time, and consequently may be looked upon as one of the most ancient cities in the world. In the time of King David it seems to have been a very considerable place; as the sacred historian tells us, that the Syrians of Damascus sent 20,000 men to the relief of Hadadezer king of Zobah. We are not informed whether at that time it was governed by kings, or was a republic. Afterwards, however, it became a monarchy which proved very troublesome to the kingdom of Israel, and would even have destroyed it entirely, had not the Deity miraculously interposed in its behalf. At last this monarchy was destroyed by Tiglath Pileser king of Assyria, and Damascus was never afterwards governed by its own kings. From the Assyrians and Babylonians it passed to the Persians, and from them to the Greeks

under Alexander the Great. After his death it belonged, with the rest of Syria, to the Seleucidæ; till their empire was subdued by the Romans, about 70 years before Christ. From them it was taken by the Saracens in 633; and it is now in the hands of the Turks.—Notwithstanding the tyranny of the Turkish government, Damascus is still a considerable place. It is situated in a plain of so great extent, that one can but just discern the mountains which compass it on the other side. It stands on the west side of the plain, about two miles from the head of the river Barrady, which waters it. It is of a long, straight figure, extending about two miles in length, adorned with mosques and steeples, and encompassed with gardens computed to be full 30 miles round. The river Barrady, as soon as it issues from the clefts of the Antilibanus into the plain, is divided into three streams, whereof the middlemost and biggest runs directly to Damascus, and is distributed to all the cisterns and fountains of the city. The other two seem to be artificial; and are drawn round, one to the right and the other to the left, on the borders of the gardens, into which they are let by little currents, and dispersed everywhere. The houses of the city, whose streets are very narrow, are all built on the outside either with sun-burnt brick or Flemish wall: and yet it is no uncommon thing to see the gates and doors adorned with marble portals, carved and inlaid with great beauty and variety; and within these portals to find large square courts beautified with fragrant trees and marble fountains, and compassed round with splendid apartments. In these apartments the ceilings are usually richly painted and gilded; and their duans, which are a sort of low stages seated in the pleasantest part of the room, and elevated about 16 or 18 inches above the floor, whereon the Turks eat, sleep, say their prayers, &c. are floored, and adorned on the sides with variety of marble mixed in mosaic knots and mazes, spread with carpets, and furnished all round with bolsters and cushions, to the very height of luxury. In this city are shown the church of John the Baptist, now converted into a famous mosque; the house of Ananias, which is only a small grotto or cellar, wherein is nothing remarkable; and the house of Judas with whom Paul lodged. In this last is an old tomb, supposed to be that of Ananias; which the Turks hold in such veneration, that they keep a lamp continually burning over it. There is a castle belonging to Damascus, which is like a little town, having its own streets and houses; and in this castle a magazine of the famous Damascus steel was formerly kept. The fruit-tree called the *dama scene*, and the flower called the *dama sk rose*, were transplanted from the gardens belonging to this city; and the silks and linens known by the name of *dama sks*, were probably invented by the inhabitants.

DAMASCUS Steel. See **DAMASK**.

DAMASIA, in *Ancient Geography*, a town of Vindelicia, on the Licus. Afterwards called *Augusta*. Now *Augsburg* in Suabia, on the Lech. E. Long. 10. 50. N. Lat. 48. 20.

DAMASK, a sort of silken stuff, having some parts raised above the ground, representing flowers or other figures. Damask should be of dressed silks, both in warp and woof. It has its name from its being originally brought from Damascus in Syria.

There

Damascus
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Damask.

Damask
||
Damiens.

There is also a stuff in France called the *caffart damask*, made in imitation of the true damask, having woof of hair, coarse silk, thread, wool, or cotton. Some have the warp of silk and the woof of thread; others are all thread or all wool.

DAMASK is also a kind of wrought linen, made in Flanders; so called, because its large flowers resemble those of damasks. It is chiefly used for tables; a table cloth and a dozen of napkins are called a *damask-service*.

DAMASK is also applied to a very fine steel, in some parts of the Levant, chiefly at Damascus in Syria: whence its name. It is used for sword and cutlass blades, and is finely tempered.

DAMASKEENING, or DAMASKING, the art or operation of beautifying iron, steel, &c. by making incisions therein, and filling them up with gold or silver wire; chiefly used for adorning sword-blades, guards and gripes, locks of pistols, &c.

Damaskening partakes of the mosaic, of engraving, and of carving: like the mosaic, it has inlaid work; like engraving, it cuts the metal, representing divers figures; and, as in chasing, gold and silver is wrought in relieve. There are two ways of damasking: the one, which is the finest, is when the metal is cut deep with proper instruments, and inlaid with gold and silver wire: the other is superficial only.

DAMELOPRE, a kind of bilander, used in Holland for conveying merchandise from one canal to another; being very commodious for passing under the bridges.

DAMIANISTS, in church-history, a branch of the ancient acephali hereticks. They agreed with the catholics in admitting the sixth council, but disowned any distinction of persons in the Godhead; and professed one single nature, incapable of any difference: yet they called God "the Father, Son, and Holy Ghost."

DAMIENS, ROBERT FRANÇAIS, an assassin by whom Louis XV. of France was wounded in the year 1757. He was born in the suburbs of Arras, in the year 1714; and seems rather to have been actuated by phrenzy or insanity in the perpetration of the horrid deeds of which he was guilty, than by any of the motives to which they have been ascribed. This spirit appeared in the early period of his life; and such were the extravagance and violence of his conduct, that he was distinguished, while a boy, by the appellation of *Robert the Devil*.

When he grew up he entered into the army, served as a soldier at the siege of Philipburgh, and was present at several engagements. He returned afterwards to France, and became a domestic servant in the college of Jesuits at Paris. He married in 1738, which rendered it necessary for him to resign this service. He was then employed in the same capacity by different masters, one of whom, it is said, he poisoned; and having robbed another, he was obliged to abscond to escape the punishment due to his crimes. During a period of five months after the discovery of the robbery, he lurked in the neighbourhood of St Omer, Dunkirk, and Brussels; and was observed to express himself in an absurd and incoherent manner concerning some disputes which at this time prevailed in France. The following soliloquy is said to have been uttered

by him in a small town near Ypres: "If I return to France—Yes, I will return, I will die there, and the greatest man on earth shall die likewise, and you shall hear news of me." These expressions were uttered in the month of August 1756; and it is probable that they were regarded at the time only as the ravings of a madman. He spoke indeed in a similar strain in the December following, at the house of a relation, at Falesque near Arras, saying, "That the kingdom, his wife, and daughter were all ruined!" It was about this time that he set out for Paris, and arrived there on the 31st of December. He was seen at Versailles, on the first day of January 1757. To blunt his feelings, and to prepare himself for the perpetration of the horrid act, it is said that he swallowed opium for several days. But the state of mind in which Damiens is described to have been for some time before, seemed to render such auxiliaries unnecessary.

It was on the 5th of January, between five and six in the evening, that Louis XV. was wounded by the hand of this frantic assassin. He struck with a knife the right side of the king, while he was surrounded with his courtiers, and just as he was entering his carriage to go to Trianon. Damiens was instantly seized, examined at Versailles, and afterwards sent to Paris and confined in the tower of Montgomerri, in an apartment prepared for him, near to that which was formerly occupied by Ravallac the murderer of Henry IV. The great court of parliament was charged by the king to institute his process; and although he was subjected to the most cruel tortures, which he bore with unexampled fortitude, no confession or acknowledgment could be extorted which afforded the smallest ground for suspicion that he had a single accomplice. When it was found that the torture failed of the purpose for which it was inflicted, he was condemned to die by the same punishment which Ravallac suffered.

The 28th of March following was fixed as the day of his execution. On that day he was brought to the *Place de Greve*, where the apparatus and instruments of his destruction were prepared. All these he beheld with an undismayed countenance and a tearless eye, although he must have known well that new and more dreadful tortures yet awaited him. His punishment commenced with burning his right hand; his flesh was then torn with red-hot pincers; and the wounds were filled with melted wax, pitch, and lead. In attempting to quarter his body, the four horses which were employed pulled in vain for 50 minutes. All their efforts seemed to be ineffectual, till the executioners cut with knives the ligaments with which the limbs are attached to the body. Even after the legs were cut he was still alive, and it was only after the arms were treated in the same way that he ceased to breathe, and his body was dismembered. The period of his punishment, from the time he was put upon the scaffold till his death, was not less than an hour and a half; during the greater part of it he seemed to retain his recollection; for he raised his head many times, and cast his eyes on his mangled and burned limbs, and on the horses which were then exerting their whole force to tear his body asunder. And even during the severest of his tortures, the firmness of his mind was so little shaken, that he affected some degree of jocularity.

Damiens.

Damiens,
Damietta.

Thus perished this unfortunate assassin, the history of whose life, considered in itself, is scarcely worthy of a place even for the shortest sketch; and indeed we should probably not have introduced it here, were it not for the purpose of rectifying the mistaken views of some of his biographers. While we are told that he was an insane assassin, he is charged with the same degree of guilt, as if he had been all his life in full possession of every rational faculty. But the events of his life leave no doubt of his insanity; and the last horrid deed which he perpetrated strongly confirms it. He was not actuated by either public or private revenge; he had no accomplices; and it does not appear that he had any purpose whatever to serve by taking away the life of the monarch, even if he had succeeded and escaped. In the midst of his most cruel tortures, he obstinately persisted that it was not his intention to kill the king. According to his own fanatical language, he wished that God would touch his heart to induce him to give peace to his kingdom. Our readers will probably anticipate us in remarking the needless excess of lingering punishment which was inflicted on the insane Damiens; and some of them will perhaps be surprised to be told that the execution was attended by some of the ladies of the court. Many of them too will naturally compare this event with what has happened more lately in our own country; and recollect, that a Nicholson and a Hadfield, influenced by a similar frenzy which urged them to a similar attempt, have been only doomed to perpetual confinement, not as a punishment, but merely to preclude the possibility of perpetrating such deeds; because in such a state of mind they are not recognized by our milder and more equitable laws, as rational beings; and therefore they are improper objects of punishment.

DAMIETTA, a port-town of Egypt, situated on the eastern mouth of the river Nile, four miles from the sea, and 100 miles north of Grand Cairo. E. Long. 32. and N. Lat. 31. The present town stands upon a different site from the ancient Damietta, so repeatedly attacked by the European princes. The latter, according to Abulfeda, was "a town surrounded by walls, and situated at the mouth of the eastern branch of the Nile." Stephen of Byzantium informs us, that it was called *Thamiatis* under the government of the Greeks of the lower empire, but that it was then very inconsiderable. It increased in importance every day, in proportion as Pelusium, which was frequently plundered, lost its power. The total ruin of that ancient town occasioned the commerce of the eastern parts of the Delta to be transferred to Damietta. It was, however, no longer a place of strength, when, towards the year 238 of the Hegira, the emperors of Constantinople took possession of it a second time. The importance of a harbour so favourably situated opened the eyes of the caliphs. In the year 244 of the Hegira, Elmetouakkel surrounded it with strong walls. This obstacle did not prevent Roger king of Sicily from taking it from the Mahometans in the year 550 of the Hegira. He did not, however, long enjoy his conquest. Salah Eddin, who about that period mounted the throne of Egypt, expelled the Europeans from Damietta. Fifteen years after they returned to besiege it; but this able sultan baffled all their efforts. Notwithstanding their land army was supported by a fleet

of 1200 sail, they were obliged to make a disgraceful retreat. Damietta.

It was the fate of this place to be constantly besieged. In the year 615 of the Hegira, under the reign of Eladel, the crusaders attacked it with a very considerable force. They landed on the western shore of the Nile; and their first care was to surround their camp with a ditch and pallisado. The mouth of the river was defended by two towers, furnished with numerous garrisons. An enormous iron chain, stretching from one side to the other, hindered the approach of vessels. The crusaders carried by storm the tower on the same side with their camp, broke the chain, and opened the entrance of the river for their fleet. Nejm Eddin, the sultan's son, who was encamped near Damietta, covered it with an army. To stop the enemies vessels he threw a bridge over the Nile. The Franks overturned it, and the prince adopted the measure of choking up the mouth of the river, which he almost rendered impassable by several large boats he sunk there. After alternate and various successes, many bloody battles, and a siege of 17 months, the Christian princes took Damietta by storm. They did not, however, long enjoy the fruit of so much blood spilt, and of an armament which had cost immense sums. Completely invested near the canal of Achmoun, by the waters of the Nile and by the Egyptian army, they purchased their lives and their liberty by the sacrifice of their conquest.

One-and-thirty years after this defeat St Louis carried Damietta without striking a stroke. The Arabs, however, soon recovered it; but tired of keeping a place which continually drew upon them the most warlike nations of Europe, they totally destroyed it, and rebuilt it further up in the country. This modern Damietta, first called *Menchié*, as Abulfeda tells us, has preserved the memory of its origin in a square still called by that name. Writers in general have confounded these two towns, ascribing to the one the attributes of the other. The modern Damietta is rounded in a semicircle on the eastern bank of the Nile, two leagues and a half from the mouth of it. The eye, placed at one of the extremities of the crescent, takes in its whole extent. It is reckoned to contain 80,000 souls. It has several squares, the most considerable of which has retained the name of *Menchié*. The bazars are filled with merchants. Spacious *okals* or *kbas*, collecting under their porticoes the stuffs of India, the silks of Mount Lebanon, sal ammoniac, and pyramids of rice, proclaim that it is a commercial town. The houses, those in particular which are on the banks of the river, are very lofty. They have in general handsome saloons built on the top of their terraces, which are cheerful belvideres, open to every wind, where the Turk, effeminately reclining on a sofa, passes his life in smoking, in looking on the sea, which bounds the horizon on one side, on the great lake that extends itself on the other, and on the Nile, which, running between them, traverses a rich country. Several large mosques, adorned with lofty minarets, are dispersed over the town. The public baths, lined with marble, are distributed in the same manner as those of Grand Cairo. The linen you are served with is clean, and the water very pure. The heat and the treatment in them, so far from injuring the health, serve to strengthen, nay even to improve it, if used with moderation. This

Damietta. This custom, founded on experience, is general in Egypt.

The port of Damietta is continually filled with a multitude of boats and small vessels. Those called *scherm* serve to convey the merchandise on board the ships in the road, and to unload them; the others carry on the coasting-trade. This town carries on a great trade with Syria, with Cyprus, and Marfeilles. The rice called *mezelaoni*, of the finest quality there is in Egypt, is cultivated in the neighbouring plains. The exports of it amount annually to about six millions of livres. The other articles of the produce of the country are linens, sal ammoniac, corn, &c. A ruinous policy for the country prohibits the exportation of this last article; but the law is evaded, and it passes under the name of rice.

The Christians of Aleppo and Damascus, settled in this town, have for several ages carried on its principal commerce. Turkish indolence, content with extorting from them from time to time, suffers them to become rich. The exportation of rice to foreign countries is prohibited; but by means of some *douceurs* to the customhouse-officers, the people of Provence load annually several ships with it. The *Bogaz* preventing them from entering the Nile, their cargoes are conveyed on board by the boats of the country. This inconvenience is the source of endless vexation and abuses. The boat, which is loaded in the evening with rice of the first quality, is frequently not that which arrives at the ship; an inferior quality is substituted for it during the night. The Marfeilles captains, aware of these rogueries, without being able to prevent them, endeavour to play off trick against trick, so that this commerce has become a general scene of knavery. But the badness of the port is still more detrimental to Damietta. The road where the vessels lie being exposed to every wind, the slightest gale obliges the captains to cut their cables and take shelter at Cyprus, or to stand off to sea. It would be easy, by cutting a canal only of half a league, to open a passage for ships into the Nile, where there is deep water. This work, which might be executed at very little expence, would render Damietta a noble harbour; but despotism, insensible to the interest of the people, is always surrounded by destruction in its progress, and wants both the will and the power to create.

The tongue of land on which Damietta is situated, straitened on one side by the river, and on the other by the western extremity of lake *Menzalé*, is only from two to six miles wide from east to west. It is intersected by innumerable rivulets in every direction, which render it the most fertile spot in Egypt. The soil there produces, *communibus annis*, 80 bushels of rice for one. The other produce is in the same proportion. It is there that nature, lavishing profusely her pomp and riches, presents flowers, fruits, and harvests, at every season of the year. Winter never deprives it of these advantages; its beauties are never impaired by summer. Destructive heats, as well as chilling colds, are equally unknown in that happy spot. The thermometer varies only from 9 to 24 degrees above the freezing point. Damietta is indebted for this charming temperature to the immense quantity of water with which it is surrounded. The verdure is nowhere so fresh; the trees are nowhere covered with

such quantities of fruit. The rivulets around the fields of rice are lined with several kinds of reeds, some of which rise to a great height. The reed *calamus* is here found in abundance, which is made use of for writing by the orientals. Its slender stalks bear long narrow leaves, which hang gracefully, and spreading branches covered with white flowers. Here also are to be seen forests of papyrus, of which the ancient Egyptians made their paper. Strabo, who calls it *biblius*, gives an accurate description of it. It is here also that the *lotus*, of which the Arabs have preserved the primitive name of *nuphar*, exalts its lofty stalk above the waters. Its large calyx blows either of an azure blue or of a brilliant white, and it appears with the majesty of the king of the aquatic plants. The marshes and the canals in the interior parts of the country are filled with this superb flower, which diffuses a most agreeable odour.

There are a great many villages around Damietta, in most of which are manufactures where the most beautiful linens of the country are fabricated. The finest napkins in particular are made there, fringed with silk. You are served at table with them, but especially on ceremonial visits, when the slave presents you with one to wipe your mouth with, after you have drank your sherbet, or eat the sweatmeats, which are carried round on a silver plate to all the company. These small towns, generally surrounded with little woods, or trees promiscuously planted, form a whimsical and picturesque assemblage. By the side of the sycamore and the melancholy tamarind, one sees the elegant cassia-tree, with its clusters of yellow flowers, like those of the cytissus. The top of the date-tree, loaded with enormous bunches, rises above the grove. The cassia, with its sweet-scented flower, grows under its shade. The orange and lemon trees cover the labourer's cabin with their golden fruit. The banana-tree with its long leaves, the pomegranate with its scarlet flower, and the fig-tree with its luscious fruit, throw a vast variety into these landscapes.

DAMNII, anciently a people of Britain; situated between the Selgovæ to the south and the Caledonii to the north. Now *Clydesdale*.

DAMNONII. See DANMONII.

DAMOCLES, one of the flatterers of Dionysius the Elder of Sicily. He admired the tyrant's wealth, and pronounced him the happiest man on earth. Dionysius prevailed upon him to undertake for a while the charge of royalty, and be convinced of the happiness which a sovereign enjoyed. Damocles ascended the throne, and while he gazed upon the wealth and splendor that surrounded him, he perceived a sword hanging over his head by a horse hair. This so terrified him that all his imaginary felicity vanished at once, and he begged Dionysius to remove him from a situation which exposed his life to such fears and dangers.

DAMON, the name of several illustrious ancients; particularly of a Pythagorean philosopher very intimate with Pythias. When he had been condemned to death by Dionysius, he obtained from the tyrant leave to go and settle his domestic affairs, on promise of returning at a stated hour to the place of execution. Pythias pledged himself to undergo the punishment which was to be inflicted on Damon, should he not return in time, and he consequently delivered himself in-

Damietta
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Damocles.

Dampier. to the hands of the tyrant. Damon returned at the appointed moment, and Dionysius was so struck with the fidelity of those two friends, that he remitted the punishment, and intreated them to permit him to share their friendship and enjoy their confidence.

DAMPIER, WILLIAM, an English navigator, was born at East Coker in Somersetshire, about the year 1652. His parents died while he was young, and having thus become an orphan, he was removed from the Latin school, and placed with the master of a ship at Weymouth. In this ship he made a voyage to Newfoundland; but, on his return, he left his master, with the resolution, as he himself observes, of never again exposing himself to the pinching cold of that northern climate. As the acquisition of experience in the art of navigation was ever his great object, he engaged himself as a common sailor in a voyage to the East Indies. He served in the Dutch war under Sir Edward Sprague, and was present at two engagements. The declining state of his health would not permit him to remain on board the fleet; he therefore came on shore, and removed to the country, where he remained some time. The year following he accepted an offer of employment in Jamaica as an under manager of an estate; but he only continued a short time in that situation; after which he engaged in a coasting trader, and thus acquired an accurate knowledge of all the ports and bays of that island. Soon after he entered on board a vessel bound to the bay of Campeachy, and returning a second time to the same coast, he remained with the logwood-cutters, and engaged himself as a common workman. During his stay in this country he collected the materials for the minute and interesting account which he has given of the laborious life of these people, as well as of the geographical description and the natural history of the tract which they occupy.

Satisfied with the knowledge which he had obtained of the nature of the trade and country, he returned to Jamaica, and from thence to England, where he arrived in 1678. About the beginning of the year following he went out to Jamaica as a passenger, with the intention of revisiting the bay of Campeachy; but he was persuaded to associate himself with a body of *privateers*, as they were called, who were then lying in several vessels in a bay of that island. These people who were called *privateers* were pirates, who, having no commission whatever from any government, undertook a predatory warfare on the commerce and settlements of the Spaniards. This body of plunderers was composed of English, Dutch, and French. In this expedition Dampier crossed the isthmus of Darien with his associates, and spent the year 1680 on the Peruvian coast, and was occasionally successful in plundering the towns. The following year, in consequence of a dissension which arose among them, Dampier and the minority with whom he had joined, recrossed the isthmus, and entered with another fleet of privateers, which was then stationed on the Spanish main; and, having spent another year among the West India islands, he, with some others, proceeded to Virginia in a single ship to dispose of their prize goods. Here he remained for a year; and afterwards engaged with a Captain Cook, who, with about 70 men, undertook an expedition against the Spaniards in the South seas.

They sailed in 1683 in the month of August, touched **Dampier.** at the coast of Guinea, and then proceeded round Cape Horn into the Pacific ocean. Having fallen in with a ship from London, which had sailed on a similar expedition, they joined company; and, having touched at the island of Juan Fernandez, they made the coast of South America, cruising along Chili and Peru. They took some prizes, and with them they proceeded to the Mexican coast, which they fell in with near Cape Blanco. While they lay here Captain Cook died, and the command devolved on Captain Davis. Having separated from the London ship, they were joined by another commanded by Captain Swan. An attempt to plunder the town of Guaiacuil was unsuccessful, but at the mouth of the river they took some vessels which had about 1000 slaves on board. With these negroes Dampier proposed to work the gold mines in the neighbourhood of Santa Maria on the isthmus of Darien, from which the Spaniards had been driven away by some privateers. But this plan was not adopted. The next object of plunder was the Spanish fleet having on board the treasure of the Peruvian mines; but the English being ill supported by some French ships which had joined them, the fleet, after a running fight, got safe into Panama.

The English ships afterwards cruising along the coast of Mexico, landed, took the town of Puebla Nova, and burnt two others. Dampier leaving Davis, went on board of Swan's ship, and proceeded with him along the northern parts of Mexico, as far as the southern part of California. During this expedition they frequently landed for the purpose of plunder, but particularly when they were in want of provisions. Returning from the plunder of one place, 50 of the party were killed by the Spaniards. This disaster so discouraged them that they relinquished all farther attempts on these coasts. Swan then proposed to run across the Pacific ocean, and return by the East Indies; and in hopes of a successful cruise off the Manillas the crew were persuaded, with a very slender provision, to risk this long passage. On the last day of March 1686, they took their departure from Cape Corrientes, and on the 52d day reached Guam, one of the Ladrone islands. About this time the crew talked of killing and eating Swan and the officers, in case their stock of provision should be exhausted before it could be supplied. From Guam they proceeded to Mindanao. While the ship lay here a mutiny arose among the crew, and the majority carried her off, Swan and some of his people being left on the island. Among the former was Dampier, although it is said that he had no concern in the mutiny. After cruising some time off Manilla, and having careened their vessel at Polo Condore, in 1687 they were driven to the Chinese coast, made the circuit of Luzonia and Mindanao, passed through the group of spice islands, and reached the coast of New Holland in the beginning of 1688. They left this in March, and having passed along the west coast of Sumatra, they arrived at the Nicobar islands, where Dampier, at his own request, and two other Englishmen, a Portuguese, and some Malays, were set on shore. Dampier's object was to establish a trade in ambergris. Attempting to navigate a canoe to Acheen in Sumatra, they were overtaken by a severe storm, in which they experienced great hardships. They

Dampier. They at last reached Sumatra; but the fatigues and distress of the voyage proved fatal to several of them, who were carried off by a fever. Dampier himself was scarcely recovered at the end of a twelvemonth. After making several voyages to different places of the East Indies, he acted for some time as gunner at the English fort of Bencoolen. In 1691, wishing to revisit his native country, he embarked on board a ship for England, where he arrived in September. At this time he brought with him a native of Meangis, one of the spice islands, who was supposed to be the son of a chief, and after being exhibited as a sight, died of the smallpox at Oxford.

It is not known in what manner Dampier was employed for some years after this period. It appears, however, that he was at last engaged in the king's service. He had the command of the *Roebuck*, a sloop of 12 guns and 50 men. This vessel, it is supposed, was fitted out for some voyage of discovery, for he had 20 months provisions on board. He sailed from Britain in 1699, touched at the coast of Brasil, and then ran across to the coast of New Holland, and arrived there on the 1st of August, about latitude 26°. He proceeded northwards along the coast, exploring the country in different places where he landed. To procure refreshments he found it necessary to direct his course towards Timor; and from this he sailed to the coast of New Guinea, where he arrived on the 3d of December. By sailing along to its easternmost extremity, he discovered that it was terminated by an island, which he circumnavigated, and named New Britain.

Here it would appear from his own journal that he encountered considerable difficulties from the small number of his men, and their eager desire to hasten home. On account of these difficulties he was prevented from prosecuting his discoveries. In May he returned to Timor, and from thence proceeded homeward by Batavia and the Cape of Good Hope. In February 1701 he arrived off the island of Ascension, where the vessel sprung a leak and foundered; and it was with much difficulty that the crew reached the island. They remained at Ascension till they were taken away by an East India ship, and conveyed to England. This closes the account of Dampier's life and adventures, as it is detailed by himself. It appears, however, from the preface to the third volume, that he was preparing in 1703 for another voyage. It is mentioned also in Woodes Rogers' Voyage round the World, that Dampier had the command of a ship in the South seas about the year 1705, along with Captain Stradling, whose vessel foundered at sea. Dampier accompanied Woodes Rogers in his voyage round the world, in the years 1708, 1709, 1710, and 1711; but only in the capacity of pilot, which is supposed to be owing to something faulty in his conduct. During this expedition Guaiacul was taken, and Dampier had the command of the artillery. Nothing farther is known of the life of Dampier; and we are equally ignorant of the place and time of his death.

The works of Dampier are well known, and have been often reprinted. They consist of, 1. *A Voyage round the World*, 3 vol. octavo. 2. *A Supplement to it*, describing the countries of Tonquin, Malacca, &c. 3. *Two Voyages to Campeachy*. 4. *A Dis-*

course of Trade-winds, Seasons, Tides, &c. in the Torrid Zone. 5. *A Voyage to New Holland*. His observations are curious and important, and conveyed in a plain manly style. His nautical remarks discover a great deal of professional knowledge. His knowledge in natural history is not scientific; but it appears to be accurate, and has been frequently quoted.

DAMPS, in *Natural History*, (from the Saxon word *damp*, signifying vapour or exhalation), are certain noxious exhalations issuing from some parts of the earth, and which prove almost instantly fatal to those who breathe them.

These damps are chiefly observed in mines and coal-pits; though vapours of the same kind often issue from old lavas of burning mountains, and, in those countries where volcanoes are common, will frequently enter houses, and kill people suddenly without the least warning of their approach. In mines and coal-pits they are chiefly of two kinds, called by the miners and colliers the *choke* and *fire damps*; and both go under one general name of *foul air*. The *choke-damp*, known in modern chemistry by the name of *fixed air*, or *carbonic acid gas*, usually infests those places which have been formerly worked, but long neglected, and are called by the miners *wastes*. No place, however, can be reckoned safe from this kind of damps, except where there is a due circulation of air; and the procuring of this is the only proper means of preventing accidents from damps of all kinds. The *choke-damp* suffocates the miners suddenly, with all the appearances found in those that are suffocated by fixed air. Being heavy, it descends towards the lowest parts of the workings, and thus is dangerous to the miners, who can scarce avoid breathing it. The *fire damp*, which is inflammable air, *hydrogen gas*, rises to the roof of the workings, as being specifically lighter than the common atmosphere; and hence, though it will suffocate as well as the other, it seldom proves so dangerous in this way as by its inflammable property, by which it often takes fire at the candles, and explodes with extreme violence.

In the *Phil. Trans.* N^o 119. there is an account of some explosions by damps of this kind, on which we have the following observations. 1. Those who are in the place where the vapour is fired suddenly find themselves surrounded with flames, but hear little or no noise; though those who are in places adjacent, or above ground, hear a very great one. 2. Those who are surrounded by the inflamed vapour feel themselves scorched or burnt, but are not moved out of their places, though such as unhappily stand in the way of it are commonly killed by the violence of the shock, and often thrown with great force out at the mouth of the pit; nor are the heaviest machines found able to resist the impetuosity of the blast. 3. No smell is perceived before the fire, but a very strong one of brimstone is afterwards felt. 4. The vapour lies towards the roof, and is not perceived if the candles are held low; but when these are held higher, the damp descends like a black mist, and catches hold of the flame, lengthening it to two or three handfuls; and this appearance ceases when the candles are held nearer the ground. 5. The flame continues in the vault for several minutes after the crack. 6. Its colour is blue, something inclining to green, and very bright. 7. On the explosion of the vapour,

Damps. vapour, a dark smoke like that proceeding from fired gunpowder is perceived. 8. Damps are generally observed to come about the latter end of May, and to continue during the heat of summer. They return several times during the summer season, but observe no certain rule.

Besides these kinds of damps, which are very common, we find others described in the Philosophical Transactions, concerning the nature of which we can say nothing. Indeed the account seems somewhat suspicious. They are given by Mr Jessop, from whom we have the foregoing observations concerning the fire-damp, and who had these from the miners in Derbyshire. After describing the common damp, which consists of fixed air, "They call the second sort (says he) the *pease-bloom damp*, because, as they say, it smells like pease-bloom. They tell me it always comes in the summer time; and those grooves are not free which are never troubled with any other sort of damps. I never heard that it was mortal; the scent, perhaps, freeing them from the danger of a surprize: but by reason of it many good grooves lie idle at the best and most profitable time of the year, when the subterraneous waters are the lowest. They fancy it proceeds from the multitude of red-trefoil flowers, by them called *bonney-suckles*, with which the limestone meadows in the Peake do much abound. The third is the strangest and most pestilential of any; if all be true which is said concerning it. Those who pretend to have seen it (for it is visible) describe it thus: In the highest part of the roof of those passages which branch out from the main groove, they often see a round thing hanging, about the bigness of a foot-ball, covered with a skin of the thickness and colour of a cobweb. This, they say, if it is broke by any accident, as the splinter of a stone, or the like, disperseth itself immediately, and suffocates all the company. Therefore, to prevent casualties, as soon as they have espied it, they have a way, by the help of a stick and long rope, of breaking it at a distance; which done, they purify the place well with fire, before they dare enter it again. I dare not avouch the truth of this story in all its circumstances, because the proof of it seems impossible, since they say it kills all that are likely to bear witness to the particulars: neither do I deny but such a thing may have been seen hanging on the roof, since I have heard many affirm it."—Some damps, seemingly of the same nature with those last mentioned, are noticed by the author of the Chemical Dictionary, under the word *Damps*. "Amongst the noxious mineral exhalations (says he), we may place those which are found in the mines of Sal gem in Poland. These frequently appear in form of light flocks, threads, and spiders webs. They are remarkable for their property of suddenly catching fire at the lamps of the miners with a terrible noise and explosion. They instantly kill those whom they touch. Similar vapours are found in some mines of fossil coal."

With regard to the formation of damps we have as yet no certain theory; nor, though the experiments of aerologists are abundantly able to show the composition and manner of forming these noxious airs artificially, have they yet thrown much light on the method by which nature prepares them on a large scale. There are two general ways in which we may suppose

this to be done; one by the stagnation of atmospheric air in old waste places of mines in coal-pits, and its conversion into these mephitic exhalations; the other by their original formation from the phlogistic or other materials found in the earth, without any interference of the atmosphere. In favour of the former opinion it may be urged, that old wastes are never free from damps, especially those of the kind resembling fixed air; nor are they always deficient in the inflammable kind. The same is also true of old wells, or even cellars, and in short every place where the air stagnates for any considerable time. But, on the other hand, we have many instances of fixed air coming out of the earth, and that in vast quantities, where no considerable stagnation of the atmosphere could be suspected; as for instance, in the grotto del Cani in Italy, where a continual stream of it has issued from time immemorial. The same seems to be the case with the tops of some high mountains, particularly Mont Blanc, the highest in Europe; on the top of which M. Saussure found the atmosphere so much impregnated with fixed air, that lime water exposed to it very quickly gathered a crust on its surface. Sir William Hamilton, in his account of the eruptions of Vesuvius, informs us, that the inhabitants in the neighbourhood of that mountain are infested with a kind of pestilential vapours named by them *mofetes*, which issue from the old lava thrown out by the volcano. These are of the nature of the damps in our mines or coal-pits, and issue forth in such quantity as either to infect the atmosphere for a very considerable way round, or to do mischief by being carried from place to place by the atmospheric currents, which are not strong enough to dissipate them for some time. From some late accounts the *famiel* (or scorching winds, as they have been represented) in the eastern countries, seem to be no other than streams of fixed air of considerable extent, which exert their usual and fatal effects on those who breathe them. A strong argument in favour of this opinion is, that these winds cannot cross a river, it being the nature of water to absorb fixed air, and thus destroy them.

Hence it is rendered probable that these mephitic vapours are often to be met with in the open atmosphere, and consequently cannot always be the effect of stagnation; nor indeed does it at all appear that mere stagnation can affect the quality of the atmosphere either one way or other. This fluid cannot have its properties altered but by something immersed in it upon which it can act, and by means of which action its component parts may be changed or separated. While this process is going on, there is generally, if not always, an *absorption* of air, accompanied indeed frequently with an emission of some aerial fluid equal in quantity to that which is absorbed. Mr Scheele, in his Essay on Fire, has shown by a number of experiments the effect of exposing certain substances to the action of air, both on the substances themselves and on the aerial fluid. The result of all these is no other than what we might expect from a very slow combustion, and which perhaps may on inquiry be found to be the only way by which air can be decomposed. If the substance exposed to the air was capable of absorbing that part of the fluid which had undergone a change, there was always an evident diminution

Damps. nation, but not otherwise. Thus, on inclosing some caustic fixed alkali in a phial of atmospheric air, a considerable diminution took place; and the alkali, by becoming saturated with fixed air, showed that a decomposition had taken place, and that the dephlogisticated part of the air had separated from the other, attached itself to the fixed alkali, and become fixed air by uniting with a certain proportion of phlogistic matter. Hence we may conceive, that in any place where the air was confined over a vast quantity of caustic alkaline salt, it would soon become unfit for the purposes of animal life, and we might say that a *damp* would be formed. But this would be a damp of a very different kind from that usually met with in mines; for here the dephlogisticated part of the atmosphere being converted into fixed air, and absorbed by the salt, only the azotic gas, or as it has been called *phlogisticated*, air would remain, so that no fixed air could ever be separated from it.

Let us now suppose, that instead of the alkaline salt a quantity of burning charcoal is confined in a place where there is not a proper circulation of air, and we shall soon see that a damp of the very same kind with that called by miners the *choke-damp* will be formed. But this takes place by reason of the dissipation of the charcoal by heat, and its union with the pure part of the atmosphere, or oxygen gas, which always constitutes fixed air. In this case, however, the damp must be but of short continuance, and will soon be dissipated after the charcoal is extinguished; but if, instead of the charcoal, we substitute a large quantity of fermenting liquor, from whence the fixed air is naturally emitted, a damp will be formed much more difficult to be dissipated than the former, because it renews itself in a very short time; and, unless there is a very constant circulation of air, it will be dangerous to enter the place where it is.

From the last example we may form an idea of the manner in which these damps, consisting chiefly of fixed air, are formed. We know not indeed thoroughly the nature of fermentation; but we are assured, that it is always accompanied by an internal heat; which, in some cases, is raised to the utmost height, insomuch that large quantities of moist vegetable substances, packed together, will sometimes burst out into flame. It is not, however, at all times necessary for the extrication of fixed air, that the heat should come to this extremity. The example of fermenting liquors shows, that in some cases a very moderate heat is sufficient for the purpose. Now, though the comparison may seem somewhat inadequate between the solid substance of the earth and a fermenting liquid, yet we know that a gentle heat constantly takes place in the bowels of the earth; and that almost all terrestrial substances will emit fixed air on being exposed to heat. It is not at all improbable, therefore, that, on the large scale of nature, the quantity of materials may compensate for the weakness of the heat, and thus occasion a constant emission of fixed air; which, though slow in comparison of what is effected in our experiments by a violent artificial heat, may yet accumulate in the narrow spaces of mines in such a manner as to be very troublesome. In volcanic countries, where the heat of the earth is much greater, the emission of fixed air is in proportion: and thus we may

VOL. VII. Part I.

account for that continued stream of it, which issues from the grotto del Cani, and perhaps other places. The *mosfetes*, which are said to proceed from old lavas, can only be accounted for by supposing the heat, which originally took place in them, to be in some measure renewed; or that they have been again, by some means or other, disposed to take fire as formerly: but this we offer merely as a conjecture; there not being as yet sufficient data to determine any thing positively upon the subject.

It may be objected to the hypothesis just now laid down, that, if there is a continual disposition in the earth to produce fixed air, the whole surface of it must pour out such a quantity as would destroy every living creature upon it. This indeed might be granted, were the surface of the earth quite bare, and destitute of vegetation: but there is no absurdity, in supposing that the fixed air may be continually decomposed by the vegetables which grow all over the surface of the earth; and the atmosphere not only thus preserved from any taint from it, but supplied with a quantity of pure air, which it is certain vegetables give out. It is also certain, that wherever the atmosphere is suffered to be in contact with the bare surface of the ground for some time, a considerable quantity of fixed air will be produced, unless there is a constant circulation of atmospherical air to carry off the former before it has time to produce any sensible effect. Hence we may account for the damps in wells, cellars, and even in the confined places of old castles and ruinous buildings, where the air is not in contact with the surface of the ground of itself, but with mere heaps of rubbish and old walls.

With regard to what is called the *fire-damp*, the case seems to be more plain. In the Phil. Trans. N^o 136. we have the following account of one of this kind, which seemed evidently to issue from the earth: "This work is upon a coal of five yards in thickness, and hath been begun upon about six or eight and thirty years ago. When it was first found, it was extremely full of water, so that it could not be wrought down to the bottom of the coal; but a *witchet*, or cave, was driven out of the middle of it, upon a level, for gaining room to work, and drawing down the spring of water that lies in the coal to the eye of the pit. In driving of which witchet, after they had gone a considerable way under ground, and were scant of wind, the fire-damps began by little and little to breed, and to appear in crevices and flits of the coal, where water had lain before the opening of the coal, with a small bluish flame, working and moving continually; but not out of its first seat, unless the workmen held their candles to it; and then being weak, the blaze of the candle would drive it out with a sudden fizz away to another crevice, where it would soon after appear blazing and moving as formerly. This was the first knowledge of it in this work, which the workmen made but a sport of, and so partly neglected, till it had gotten some strength; and then upon a morning the first collier that went down, going forwards in the witchet with his candle in his hand, the damp presently darted out so violently at his candle, that it struck the man clear down, singed all his hair and clothes, and disabled him from working for a while after. Some other small warnings it gave them, in-

Damps.

much that they resolved to employ a man on purpose that was more resolute than the rest, to go down a while before them every morning, to chase it from place to place, and so to weaken it. His usual manner was to put on the worst rags he had, and to wet them all in water, and when he came within the danger of it, then he fell down grovelling upon his belly, and so went forward, holding in one hand a long wand or pole, at the head whereof he tied candles burning, and reached them by degrees towards it; then the damp would fly at them, and, if it missed of putting them out, would quench itself with a blast, and leave an ill-scented smoke behind. Thus they dealt with it till they had wrought the coal down to the bottom, and the water following, and not remaining as before in the body of it, among sulphureous and brassy metal that is in some veins of the coal, the fire-damp was not seen nor heard of till the latter end of the year 1675, which happened as followeth:

“After long working of this coal, it was found upon the rising grounds that there lay another roach of coal at the depth of 14 yards under it, which proved to be $3\frac{1}{2}$ yards thick, and something more sulphureous. This encouraged us to sink in one of the pits we had formerly used on the five-yards coal. As we sunk the lower part of it, we had many appearances of the fire-damp in the watery crevices of the rocks we sunk through, flashing and darting from side to side of the pit, and showing rainbow-like colours upon the surface of the water in the bottom; but upon drawing up of the water with buckets, which stirred the air in the pit, it would leave burning, till the colliers at work, with their breath and sweat, and the smoke of their candles, thickened the air in the pit, and then it would appear again; they lighted their candles at it sometimes when they went out; and so in this pit it did no farther harm.”

In another pit, however, it soon appeared, and at last produced a most terrible explosion. This was occasioned by one of the workmen going imprudently down with a lighted candle, after a cessation of work for some days, and the force exerted by it seemed equal to that of gunpowder.

The formation of inflammable air in mines is to be ascribed, according to the doctrines of modern chemistry, to the decomposition of water; a process which is constantly going on in places where metallic substances are exposed to its action. As the metals are oxidated by their combination with the oxygen, one of the component parts of water, the hydrogen, its other component part, is set at liberty, and accumulates in those places where it is generated.

A much more important consideration than the formation of damps, however, is the proper method of avoiding their pernicious effects. The inflammability of one kind affords an easy method of preventing it from accumulating, viz. by setting fire to it. This may be done with safety, unless it has been suffered to go too far before the experiment is made: for the inflammable air being much lighter than any other kind will naturally rise to the top; so that a man, lying flat on the ground to avoid the force of the explosion, and holding up a lighted candle fixed upon a pole, may at once free the mine from such a troublesome guest. But where it has been allowed to accu-

multate in too great quantity, so that this method cannot be used, or in the other kind, which is not inflammable, the method commonly practised is to produce a constant circulation of air as much as possible through all parts of the mine. To procure this, they make a perpendicular opening, which they call a *bank* or *shaft*, so that the mine may have two or more openings: and thus by reason of the difference of temperature between the open atmosphere and that in the mine, there is a continual draught of air through them both. This current will always be stronger in proportion to the difference between the external atmosphere and that of the mine; and likewise in proportion to the difference between the depth of the two shafts. But as the temperature of the atmosphere is variable, it happens, at certain seasons of the year, that there is not a sufficient difference between that of the atmosphere and in the mine to produce the necessary circulation. This happens principally in the spring and autumn; at which seasons it is necessary to light fires in the shafts, which are always efficacious for the purpose desired.

Among the other uses to which dephlogisticated air might be applied, Mr Cavallo reckons that of securing people from the dangerous effects of damps in mines, and other subterraneous places. “If a large bladder,” says he, “into which a solution of lime in water is introduced, be filled with dephlogisticated air, and a small wooden or glass pipe be adapted to its neck, a man may hold that pipe in his mouth, and may breathe the dephlogisticated air; and thus equipped, he may enter into these subterranean places, amidst the various elastic fluids contained in them. A large bladder of dephlogisticated air will serve for above a quarter of an hour, which is a length of time sufficient for various purposes; besides, if longer time is required to be spent in these places, a person may have two or more bladders of dephlogisticated air along with him, and may shift as soon as the air of one is contaminated. Without the necessity of any more complicated apparatus, the bladders full of dephlogisticated air may be kept stopped by putting corks into the glass or wooden pipes that are tied to their necks. This air might also be used for diving-bells.”

DAMSEL, from the French *damoiselle* or *damoiseau*, an appellation anciently given to all young people of either sex, that were of noble or genteel extraction, as the sons and daughters of princes, knights, and barons: thus we read of Damsel Pepin, Damsel Louis le Gros, Damsel Richard Prince of Wales.

From the sons of kings this appellation first passed to those of great lords and barons, and at length to those of gentlemen who were not yet knights.

At present damsel is applied to all maids or girls not married, provided they be not of the vulgar.

DAN, or JOR-DAN, which last literally denotes “the river Dan;” so named from the people where it has its source, which is a lake called *Phiala*, from its round figure, to the north of its apparent rising from the mountain Panium or Paneum, as was discovered by Philip, tetrarch of Trachonites; for on throwing light bodies into the Phiala, he found them to emerge again at Paneum (Josephus). From Paneum it runs in a direct course to a lake called *Samachonites*, as far as which it is called *Jordan the Less*; and thence to the lake

Damps
||
Dan.

Dan
||
Danaides.

Danaus
||
Dance.

lake Genesareth, or of Tiberias, where it comes increased by the lake Samachonites and its springs, and is called the *Greater Jordan*; continuing its direct course southwards, till it falls into the Asphaltites.

DAN, in *Ancient Geography*, a town to the west of the source of the Jordan; formerly called *Lais* (Joshua, Judges, Josephus). This was the north, as Beersheba was the south, boundary of the Israelites; as appears from the common expression in Scripture, from *Dan to Beersheba*. At Dan Jeroboam erected one of the golden calves (1 Kings xii.)

DAN, the tribe, extended itself westward of Judah, and was terminated by Azotas and Dora on the Mediterranean (Josephus).

DANAE, in antiquity, a coin somewhat more than an obolus, used to be put into the mouths of the dead, to pay their passage over the river Acheron.

DANAE, in fabulous history, was the daughter of Acrisius king of Argos, by Eurydice. She was confined in a brazen tower by her father, who had been told by an oracle that his daughter's son would put him to death. His endeavours to prevent Danae from becoming a mother proved fruitless; and Jupiter, who was enamoured of her, introduced himself to her bed by changing himself into a golden shower. From his embraces Danae had a son, with whom she was exposed on the sea by her father. The wind drove the bark which carried her to the coasts of the island of Seriphus, where she was saved by some fishermen, and carried to Polydectes king of the place, whose brother, called *Dictys*, educated the child called *Perseus*, and tenderly treated the mother. Polydectes fell in love with her; but as he was afraid of her son, he sent him to conquer the Gorgons, pretending that he wished Medusa's head to adorn the nuptials which he was going to celebrate with Hippodamia the daughter of Enomaus. When Perseus had victoriously finished his expedition, he retired to Argos with Danae to the house of Acrisius, whom he inadvertently killed. Some suppose that it was Proetus the brother of Acrisius who introduced himself to Danae in the brazen tower; and instead of a golden shower, it was maintained that the keepers of Danae were bribed by the gold of her seducer. Virgil mentions that Danae came to Italy with some fugitives of Argos, and that she founded a city called *Ardea*.

DANAIDES, in fabulous history, the fifty daughters of Danaus king of Argos. When their uncle Ægyptus came from Egypt with his fifty sons, they were promised in marriage to their cousins; and before the celebration of their nuptials, Danaus, who had been informed by an oracle that he was to be killed by the hands of one of his sons-in-law, made his daughters solemnly promise that they would destroy their husbands. They were provided with daggers by their father; and all except Hypermnestra stained their hands with the blood of their cousins the first night of their nuptials; and as a pledge of their obedience to their father's injunctions, they presented him each with the head of the murdered sons of Ægyptus. Hypermnestra was summoned to appear before her father, and answer for her disobedience in suffering her husband Lynceus to escape; but the unanimous voice of the people declared her innocent, and she dedicated a temple to the goddess of Persuasion. The sisters were purified of this

murder by Mercury and Minerva by order of Jupiter; but according to the more received opinion, they were condemned to severe punishment in hell, and were compelled to fill with water a vessel full of holes, so that the water ran out as soon as poured into it; and therefore their labour was infinite, and their punishment eternal. The heads of the sons of Ægyptus were buried at Argos; but their bodies were left at Lerna, where the murder had been committed.

DANAUS, in fabulous history, a son of Belus and Anchinoe, who after his father's death reigned conjointly with his brother Ægyptus on the throne of Egypt. Some time after, a difference arose between the brothers, and Danaus set sail with his fifty daughters in quest of a settlement. He visited Rhodes, where he consecrated a statue to Minerva, and arrived safe on the coast of Peloponnesus, where he was hospitably received by Gelanor king of Argos. Gelanor had lately ascended the throne, and the first years of his reign were marked with dissensions with his subjects. Danaus took advantage of Gelanor's unpopularity, and obliged him to leave the crown. In Gelanor, the race of the Inachidæ was extinguished, and the Belides began to reign at Argos in Danaus. Some authors say, that Gelanor voluntarily resigned the crown to Danaus, on account of the wrath of Neptune, who had dried up all the waters of Argolis, to punish the impiety of Inachus. The success of Danaus invited the fifty sons of Ægyptus to embark for Greece. They were kindly received by their uncle; who, either apprehensive of their number, or terrified by an oracle which threatened his ruin by one of his sons-in-law, caused his daughters, to whom they were promised in marriage, to murder them the first night of their nuptials. His order was executed. Hypermnestra alone spared the life of Lynceus: (See DANAIDES). Danaus at first persecuted Lynceus with unremitted fury; but he was afterwards reconciled to him, and he acknowledged him for his son-in-law and successor after a reign of 50 years. He began his reign about 1586 years before the Christian era; and after death he was honoured with a splendid monument in the town of Argos, which still existed in the age of Pausanias. According to Æschylus, Danaus left Egypt, not to be present at the marriage of his daughters with the sons of his brother; a connexion which he deemed unlawful and impious.

DANCE, or DANCING, as at present practised, may be defined "an agreeable motion of the body, adjusted by art to the measures or tone of instruments, or of the voice."—But, according to what some reckon more agreeable to the true genius of the art, dancing is "the art of expressing the sentiments of the mind, or the passions, by measured steps or bounds that are made in cadence by regulated motions of the body, and by graceful gestures; all performed to the sound of musical instruments or of the voice."

There is no account of the origin of the practice of dancing among mankind. It is found to exist among all nations whatever, even the most rude and barbarous; and, indeed, however much the assistance of art may be necessary to make any one perfect in the practice, the foundation must certainly lie in the mechanism of the human body itself.

The connexion that there is between certain sounds

Dance.

and those motions of the human body called *dancing*, hath seldom or never been inquired into by philosophers, though it is certainly a very curious speculation. The power of certain sounds not only over the human species, but even over the inanimate creation, is indeed very surprising. It is well known, that the most solid walls, nay the ground itself, will be found to shake at some particular notes in music. This strongly indicates the presence of some universally diffused and exceedingly elastic fluid, which is thrown into vibrations by the concussions of the atmosphere upon it, produced by the motion of the sounding body.—If these concussions are so strong as to make the large quantity of elastic fluid vibrate that is dispersed through a stone wall or a considerable portion of earth, it is no wonder they should have the same effect upon that invisible and exceedingly subtle matter that pervades and seems to reside in our nerves.

Some there are that have their nerves constructed in such a manner, that they cannot be affected by the sounds which affect others, and some scarce with any; while others have such an irritability of the nerves in this case, that they cannot, without the greatest difficulty, sit or stand still when they hear a favourite piece of music played.

It is conjectured by very eminent philosophers, that all the sensations and passions to which we are subject, do immediately depend upon the vibrations excited in the nervous fluid above mentioned. Hence, musical sounds have the greatest power over those people who are of a delicate sensible frame, and who have strong passions. If it be true, therefore, that every passion in the human nature immediately depends upon a certain affection of the nervous system, or a certain motion or vibration in the nervous fluid, we shall immediately see the origin of the different dances among different nations. One kind of vibration, for instance, raises the passions of anger, pride, &c. which are indispensably necessary in warlike nations. The sounds, for such there are, capable of exciting a similar vibration, would naturally constitute the martial music among such nations, and dances conformable to it would be instituted. This appears to be the case particularly among barbarous nations, as we shall presently have occasion to remark. Other vibrations of the nervous fluid produce the passions of joy, love, &c.; and sounds capable of exciting these particular vibrations will immediately be formed into music for dancers of another kind.

As barbarous people are observed to have the strongest passions, so they are also observed to be the most easily affected by sounds, and the most addicted to dancing. Sounds to us the most disagreeable, the drumming with sticks upon an empty cask, or the noise made by blowing into reeds incapable of yielding one musical note tolerable to us, is agreeable music to them. Much more are they affected by the sound of instruments which have any thing agreeable in them. Mr Gallini informs us, that "The spirit of dancing prevails almost beyond imagination among both men and women in most parts of Africa. It is even more than instinct, it is a rage, in some countries of that part of the globe.—Upon the Gold coast especially, the inhabitants are so passionately fond of it, that in the midst of their hardest labour, if they hear a person sing, or

any musical instrument played, they cannot refrain from dancing.—There are even well attested stories of some negroes flinging themselves at the feet of an European playing on a fiddle, intreating him to desist, unless he had a mind to tire them to death; it being impossible for them to cease dancing while he continued playing." The same thing is found to take place in America, though, as the inhabitants of that continent are found to be of a more fierce and barbarous nature than the African nations, their dances are still more uncouth and barbarous than those of the negroes. "In México, says Gallini, they have also their dances and music, but in the most uncouth and barbarous style. For their symphony they have wooden drums, something in form of a kettle-drum, with a kind of pipe or flaggell, made of a hollow cane or reed, but very grating to an European ear. It is observed they love every thing that makes a noise, how disagreeable soever the sound is. They will also hum over something like a tune when they dance 30 or 40 in a circle, stretching out their hands, and laying them on each others shoulders. They stamp and jump, and use the most antic gestures for several hours, till they are heartily weary. And one or two of the company sometimes step out of the rings to make sport for the rest, by showing feats of activity, throwing their lances up into the air, catching them again, bending backwards, and springing forwards with great agility."

The origin of dancing among the Greeks was most certainly the same as among all other nations; but as they proceeded a certain length in civilization, their dances were of consequence more regular and agreeable than those of the more barbarous nations. They reduced dancing into a kind of regular system; and had dances proper for exciting, by means of the sympathy above mentioned, any passion whatever in the minds of the beholders. In this way they are said to have proceeded very great lengths, to us absolutely incredible. At Athens, it is said, that the dance of the Eumenides or Furies on the theatre had so expressive a character as to strike the spectators with irresistible terror: men grown old in the profession of arms trembled; the multitude ran out; women with child miscarried; people imagined they saw in earnest those terrible deities commissioned with the vengeance of heaven to pursue and punish crimes upon earth.

The Greeks had martial dances, which they reckoned to be very useful for keeping up the warlike spirit of their youth; but the Romans, though equally warlike with the Greeks, never had any thing of the kind. This probably may be owing to the want of that romantic turn for which the Greeks were so remarkable. The Romans had no heroes among them, such as Hercules, Achilles, or Ajax; nor does the whole Roman history furnish an example of a general that made war after the manner of Alexander the Great. Though their soldiers were as valiant as ever the Greeks could pretend to be, the object with them was the honour of the republic, and not their own personal praise. Hence there was less fury, and much more cool deliberate valour, exercised by the Romans than any other nation whatever. The passions of pride, resentment, obstinacy, &c. were excited in them, not by the mechanical means of music and dancing, but by being taught that it was their chief honour to fight for the republic. It does not

Dance.

Dance. not however appear, that the Romans were at all less capable of being affected in this mechanical manner than the Greeks. When dancing was once introduced, it had the very same effects at Rome as at Athens.

Among the Jews, dancing seems to have made a part of the religious worship on some occasions, as we learn from some passages in the Psalms, though we do not find either that or singing positively enjoined as a divine precept. In the Christian churches mentioned in the New Testament, there is no account of dancing being introduced as an act of worship, though it is certain that it was used as such in after ages. Mr Gallini tells us, that "at Limoges, not long ago, the people used to dance the round in the choir of the church which is under the invocation of their patron saint; and at the end of each psalm, instead of the *Gloria Patri*, they sung as follows: *St Marcel, pray for us, and we will dance in honour of you.*—Though dancing would now be looked upon as the highest degree of profanation in a religious assembly, yet it is certain, that dancing, considered as an expression of joy, is no more a profanation than singing, or than simple speaking; nor can it be thought in the least more absurd, that a Christian should dance for joy that Jesus Christ is risen from the dead, than that David danced before the ark when it was returned to him after a long absence.

Plato reduces the dances of the ancients to three classes. 1. The military dances, which tended to make the body robust, active, and well disposed for all the exercises of war. 2. The domestic dances, which had for their object an agreeable and innocent relaxation and amusement. 3. The mediatorial dances, which were in use in expiations and sacrifices.—Of military dances there were two sorts: the *gymnopedique* dance, or the dance of children; and the *enoplion*, or armed dance. The Spartans had invented the first for an early excitation of the courage of their children, and to lead them on insensibly to the exercise of the armed dance. This children's dance used to be executed in the public place. It was composed of two choirs; the one of grown men, the other of children: whence, being chiefly designed for the latter, it took its name. They were both of them in a state of nudity. The choir of the children regulated their motions by those of the men, and all danced at the same time, singing the poems of Thales, Alcman, and Dionysodotus.—The *enoplion* or *pyrrhic* was danced by young men armed cap-a-pee, who executed, to the sound of the flute, all the proper movements either for attack or for defence. It was composed of four parts.—The first the *podism* or footing; which consisted in a quick shifting motion of the feet, such as was necessary for overtaking a flying enemy, or for getting away from him when an overmatch.—The second part was the *xiphism*: this was a kind of mock fight, in which the dancers imitated all the motions of combatants; aiming a stroke, darting a javelin, or dexterously dodging, parrying, or avoiding a blow or thrust. The third part, called the *komos*, consisted in very high leaps or vaultings, which the dancers frequently repeated for the better using themselves occasionally to leap over a ditch, or spring over a wall. The *tetrakomos* was the fourth and last part: this was a square figure, executed by slow and majestic movements; but it is uncer-

tain whether this was everywhere executed in the same manner.

Of all the Greeks, the Spartans were those who most cultivated the Pyrrhic dance. Athenæus relates, that they had a law by which they were obliged to exercise their children at it from the age of five years. This warlike people constantly retained the custom of accompanying their dances with hymns and songs. The following was sung for the dance called *trichoria*, said to be instituted by Lycurgus, and which had its name from its being composed of three choirs, one of children, another of young men, and the third of old. The old men opened the dance, saying, "In time past we were valiant." The young men answered, "We are so at present." "We shall be still more so when our time comes," replied the chorus of children. The Spartans never danced but with real arms. In process of time, however, other nations came to use only weapons of wood on such occasions. Nay, it was only so late as the days of Athenæus, who lived in the second century, that the dancers of the Pyrrhic, instead of arms, carried only flasks, ivy-bound wands (*thyrsus*) or reeds. But, even in Aristotle's days, they had begun to use thyrsuses instead of pikes, and lighted torches in lieu of javelins and swords. With these torches they executed a dance called the *conflagration of the world*.

Of the dances for amusement and recreation, some were but simply gambols, or sportive exercises, which had no character of imitation, and of which the greater part exist to this day. The others were more complex, more agreeable, figured, and were always accompanied with singing. Among the first or simple ones was the *ascoliasmus*: which consisted in jumping, with one foot only, on bladders filled with air or wine, and rubbed on the outside with oil. The *dypodium* was jumped with both feet close. The *kybellestis* was what is called in this country the *somer/et*.—Of the second kind was that called the *wine-press*, of which there is a description in Longinus, and the Ionian dances: these last, in the original of their institution, had nothing but what was decent and modest; but, in time, their movements came to be so depraved, as to be employed in expressing nothing but voluptuousness, and even the grossest obscenity.

Among the ancients there were no festivals nor religious assemblies but what were accompanied with songs and dances. It was not held possible to celebrate any mystery, or to be initiated, without the intervention of these two arts. In short, they were looked upon to be so essential in these kinds of ceremonies, that to express the crime of such as were guilty of revealing the sacred mysteries, they employed the word *kbeistæ*, "to be out of the dance." The most ancient of these religious dances is the *Bacchic*; which was not only consecrated to Bacchus, but to all the deities whose festival was celebrated with a kind of enthusiasm. The most grave and majestic was the *hyporchematic*; it was executed to the lyre, and accompanied with the voice. At his return from Crete, Theseus instituted a dance at which he himself assisted at the head of a numerous and splendid band of youths, round the altar of Apollo. The dance was composed of three parts; the *strophe*, the *antistrophe*, and the *stationary*. In the strophe, the movements were from the right to the left; in the antistrophe,

Dance.

Dance.

phe, from the left to the right. In the stationary, they danced before the altar; so that the stationary did not mean an absolute pause or rest, but only a more slow or grave movement. Plutarch is persuaded, that in this dance there is a profound mystery. He thinks, that by the strophe is indicated the motion of the world from east to west; by the antistrophe, the motion of the planets from the west to the east; and by the stationary, the stability of the earth. To this dance Theseus gave the name of *geranos*, or "the crane;" because the figures which characterised it bore a resemblance to those described by cranes in their flight.

With regard to the modern practice of dancing as an art, there are few directions that can be of much service. The following is extracted from Mr Gallini's description of the several steps or movements.

"The dancing (says he) is generally on a theatre, or in a saloon or room. At the theatre there are four parts to be considered. 1. The nearest front to the spectators. 2, and 3. The two sides or wings. 4. The farthest front from the spectators.

"In a saloon or room, the place in which are the spectators decides the appellation respectively to them of right and left. The dancer should place himself in as advantageous a point of view to them as possible.

"In the dance itself, there are to be distinguished, the attitude of the body, the figure, the position, the bends, the risings or leaps, the steps, the cabriole, the fallings, the slides, the turns of the body, the cadences.

"The *attitude* of the body requires the presenting one's self in the most graceful manner to the company.

"The *figure* is to follow the track prescribed to the steps in the dance.

"The *position* is that of the varied attitudes, which must be at once striking and easy, as also of the different exertions of the legs and feet in dancing.

"The *bends* are inflections of the knees, of the body, of the head, of the arms.

"The *risings* are the contrast to the bends, the extension of the knee. One of these two motions necessarily precedes the other.

"The *step* is the motion by the foot or feet from one place to another.

"The *leap* is executed by springing up into the air; it begins with a bend, and proceeds with a quick extension of the legs, so that both feet quit the ground.

"The *cabriole* is the crossing, or cutting of capers, during the leap, before the return of the feet to the ground.

"The *falling* is the return of the feet to the ground, by the natural gravitation of the body.

"The *slide* is the action of moving the foot along the ground without quitting it.

"The *turn* is the motion of the body towards either side, or quite round.

"The *cadence* is the knowledge of the different measures, and of the times of movement the most marked in the music.

"The *track* is the line marked by the dance: it may be either straight or curve, and is susceptible of all the inflections correspondent to the various designs of the composer. There are the right, the diametral line, the circular line, and the oblique line. The *right*

Dance.

line is that which goes lengthwise, reckoning from one end of the room towards the other. The *diametral* line is across the room, from one side to the other. The *circular* line is waving, or undulatory, from one place to another. The *oblique* line proceeds obliquely from one quarter of the room towards another.—Each of these lines may directly or separately form the dancer's track, diversified with steps and positions.

"The *regular* figure is when two or more dancers move in contrary directions; that is to say, that when one moves towards the right, the other moves to the left. The *irregular* line is when the couples figuring together are both on the same side.

"Commonly the man gives the right hand to the lady in the beginning or ending of the dance, as we see in the *minuet*, *louvre*, &c.

"When a great number of dancers figure together, they are to execute the figure agreeably to the composition of the dance, with special attention to keep an eye constantly on the partner. When, in any given dance, the dancers have danced for some time in the same place, the *track* is only to be considered as the conductor of the *steps*, but not of the *figure*; but when the dance continues, without being confined to the same place, then the *track* must be considered as the conductor both of the steps and of the figure.

"Now, to observe the figure, the dancer must have placed himself at the beginning of the track upon which he is to dance, and comprehend the figure before he himself begins it. He is to remark and conceive whether the figure is right, diametral, circular, or oblique; if it is progressive or retrogressive, or towards the right or left. He should have the air played or sung to him, to understand the movement.—Where the tracks cross one another, the steps of each of the couples must leave a sufficient distance between them not to confuse the figure.

"There are commonly reckoned ten kinds of positions, which are divided into *true* and *false*, five each.—There are three principal parts of the foot to be observed; the toes, the heel, and the ankle.

"The *true* positions are when the two feet are in a certain uniform regularity, the toes turned equally outwards.—The *false* are divided into regular and irregular. They differ from the true, in that the toes are either both turned inwards; or if the toes of one foot are turned outwards, the others are turned inwards.

"In the first of the true positions, the heels of the two feet are close together, so that they touch; the toes being turned out. In the second, the two feet are open in the same line, so that the distance between the two heels is precisely the length of one foot. In the third, the heel of one foot is brought to the ankle of the other, or seems to lock in with it. In the fourth the two feet are the one before the other a foot's length distance between the two heels, which are on the same line. In the fifth, the two feet are across, the one before the other; so that the heel of one foot is directly opposite to the toes of the other.

"In the first of the false positions, the toes of both feet are turned inwards so that they touch, the heels being open. The second is, when the feet are asunder at a foot's distance between the toes of each, which are turned inward, the heels being on a line. The third is, when the toes of one foot are turned outwards, the other

Dance.

Dance.

other inwards, so that the two feet form a parallel. The fourth is, when the toes of the two feet are turned inwards; but the toes of one foot are brought nearer the angle of the other. The fifth is, when the toes of the two feet are turned inwards, but the heel of one foot is opposite to the toes of the other.

“ There are mixed positions, composed of the true and false in combination; which admit of such infinite variety, and are in their nature so unsusceptible of description by words, that it is only the sight of the performance that can give any tolerable idea of them.

“ Of the bends of the knee there are two kinds; the one *simple*, the other *forced*. The simple bend is an inflection of the knees without moving the heel, and is executed with the foot flat on the ground. The forced bend is made on the toes with more force and lower.

“ Much is to be observed on the head of *steps*. First, not to make any movement before having put the body in an upright posture, firm on the haunches.

“ Begin with the inflection of the knee and thigh; advance one leg foremost, with the whole foot on the ground, laying the stress of the body on the advanced leg.

“ There are some who begin the step by the point of the toes; but that has an air of theatrical affectation. Nothing can be more noble than a graceful ease and dignity of step. The quantity of steps used in dancing are almost innumerable: they are nevertheless reducible under five denominations, which may serve well enough to give a general idea of the different movements that may be made by the leg, viz. the direct step, the open step, the circular step, the twisted step, and the cut step.

“ The *direct* step is when the foot goes upon a right line, either forwards or backwards.

“ The *open* step is when the legs open. Of this step there are three kinds: one when they open outwards; another, when, describing a kind of circle, they form an in-knee'd figure; a third, when they open sideways; this is a sort of right step, because the figure is in a right line.

“ The *round* step is when the foot, in its motion, makes a circular figure, either inwards or outwards.

“ The *twisted* step, or *pas tortille*, is when the foot in its motion turns in and out. There are three kinds of this step; one forwards, another backwards, the third sidelong.

“ The *cut* step is when one leg or foot comes to strike against the other. There are also three sorts of this step; backwards, forwards, and sidelong.

“ The steps may be accompanied with bendings, risings, leaps, cabrioles, fallings, slidings, the foot in the air, the tip-toe, the rest on the heel, quarter-turns, half-turns, three-quarter turns, and whole turns.

“ There may be practised three kinds of bends, or sinkings, in the steps; viz. bending before the step proceeds, in the act of stepping, and at the last of the steps.

“ The beginning or initial sink-pace is at the first setting off, on advancing the leg.

“ The bend in the act of stepping continues the march or walk.

“ The final sink-pace closes the march.

“ The rising is just the reverse of the bend, or sink-pace, which shall have preceded it.

“ Some great masters in the art of dancing, having observed that music, which is inseparable from it, was capable of being preserved and conveyed by the musical characters, imagined by analogy, that the like advantage could be procured to the composition of dancers. Upon this plan they attempt what is called the *chorography*, an art which they suppose was either utterly unknown to the ancients, or not transmitted to us from them.

“ It may indeed be easily allowed, that the track or figure of a dance may be determined by written or engraved lines; but those lines will necessarily appear so perplexing, so intricate, so difficult, if not impossible to seize in their various relations, that they are only fit to disgust and discourage, without the possibility of their conveying a satisfactory or retainable instruction.—Whence it is, that the article *Chorography* in the French *Encyclopedie* is universally exploded as unintelligible and useless: though nothing more than an elementary indication of the art; and an explanation, such as it is, of some of the technical terms of it.”

Stage-DANCES. The Greeks were the first who united the dance to their tragedies and comedies; not indeed as making part of those spectacles, but merely as an accessory.

The Romans, as usual, copied after the Greeks; but in the reign of Augustus they left their instructors far behind them. Two very extraordinary men made their appearance at that time: they invented a new species of entertainment, and carried it to an astonishing degree of perfection. Nothing was then talked of but the wonderful talents and amazing performances of Pylades and Bathylus, who were the first to introduce among the Romans what the French call the *ballet d'action*, wherein the performer is both actor and dancer.

Pylades undertook the hard task of representing, with the assistance of the dance alone, strong and pathetic situations. He succeeded perhaps beyond his own expectation, and may be called the father of that style of dancing which is known to us by the name of *grave or serious pantomime*.

Bathylus an Alexandrian, and a freedman of Me-cenas, took upon himself to represent such subjects as required a certain liveliness and agility. He was handsome in his person; and the two great scourges of Roman follies, Persius, and especially Juvenal, speak of him as the gallant of every woman in Rome. The latter, in his cynic style, even goes so far as to say, that when Bathylus performed the dance called, after the name of a celebrated female dancer, *Cheromenos-Leda*, the gravest matron was turned off her guard, and the young virgin longed for the dancer's addresses.

Nature had been excessively partial to those two men. They were endowed with genius, and all the exterior charms that could captivate the eye. By their study, application, and the desire to establish a lasting reputation, they displayed to the greatest advantage all the resources which the art of dancing could supply. These, like two phenomena, disappeared, and never did the world see “their like again.” Government withdrew

Dance.

withdrew its protection, the art gradually sunk into obscurity, and became even entirely forgotten on the accession of Trajan to the empire.

Thus buried with the other arts in entire oblivion, dancing remained uncultivated till about the 15th century, when ballets were revived in Italy at a magnificent entertainment given by a nobleman of Lombardy at Tortona on account of the marriage between Galeas duke of Milan and Isabella of Arragon. Every resource that poetry, music, dancing, and machinery could supply, was employed and exhausted on the occasion. The description given of so superb an entertainment excited the admiration of all Europe, and excited the emulation of several men of genius, who improved the hint to introduce among their countrymen a kind of spectacle equally pleasing and novel.

It would seem, however, that at first the women had no share in the public or theatrical dance; at least we do not see them mentioned in the various entertainments given at the opera in Paris till the 21st of January 1681, when the then dauphiness, the princess of Conti, and some other ladies of the first distinction in the court of Louis XIV. performed a ballet with the opera called *Le Triomphe de l'Amour*. This union of the two sexes served to enliven and render the spectacle more pleasing and more brilliant than it ever was at any other period. It was received with so much applause, that on the 16th of May following, when the same opera was acted in Paris at the theatre of the Palais Royal, it was thought indispensable for the success of that kind of entertainment to introduce female dancers. They have continued ever since to be the principal support of the opera.

The dance is now in such commendation, that, particularly in France, the opera-house seems rather an academy for dancing than calculated for the representation of lyric poems. The disgusting and immoderate length of their recitatives is one of the chief causes of that general taste for dancing which prevails amongst them. A wit being asked one day what could be done to keep up an opera threatened with a most complete damnation? "Do! (says he); why, lengthen the dances and shorten the petticoats." So evident it is, that singing, though apparently the chief purpose of an opera, is by no means the most pleasing part of the entertainment for the spectators.

Thus, what was at first introduced as a mere accessory to the musical performance, became in process of time its only support; and this circumstance excited the emulation of several eminent ballet-masters. The art, however, of composing those grand dances, which are now so much admired, was for many years in a state of infancy, till Monsieur Noverre stepped forth and gave it that degree of perfection which it seems impossible to exceed. This celebrated ballet-master and performer, in a work lately published, has with great elegance and ingenuity delineated the nature, objects, and powers of dancing, enumerated the proper requisites to give it effect, and shown how much it may be ennobled by an acquaintance with the kindred arts.

Ballets, he observes, have hitherto been the faint sketch only of what they may be one day. An art entirely subservient, as this is, to taste and genius, may receive daily variation and improvements. History, painting, mythology, poetry, all join to raise it from

that obscurity in which it lies buried; and it is truly surprising, that composers have hitherto disdained so many valuable resources.

Dance.

According to our author, the reason why this art has remained so long in its infancy, is because its effects have been restrained to the transitory ones of fire-works calculated only to please the eye: and it never was supposed to have powers sufficient to speak to the heart: whereas it may vie, he says, with the best dramatic pieces, prove equally interesting, and captivate the spectator by the charms of the most complete illusion.

If ballets, therefore, says he, "are for the most part uninteresting and uniformly dull: if they fail in the characteristic expression which constitutes their essence, the defect does not originate from the art itself, but should be ascribed to the artists. Are then the latter to be told that dancing is an imitative art? I am indeed inclined to think that they know it not, since we daily see the generality of composers sacrifice the beauties of the dance, and give up the graceful *naïveté* of sentiment, to become the servile copyist of a certain number of figures, known and hackneyed for above a century; so that the ballets of Phaeton, or of any ancient opera, revived by a modern composer, would prove so very similar to former ones, that one would think they have undergone no alteration, and are the same in every step.

"Ballet-masters should consult the productions of the most eminent painters. This would bring them nearer to nature, and induce them to avoid, as often as possible, that symmetry of figures, which, by repeating the object, present two different pictures on one and the same canvas.

"Those symmetrical figures from right to left, according to my judgment, are supportable only in the entrées, which are not meant to express any thing in particular, but are only calculated to afford some relief to the principal dancers. They may be introduced in a general dance at the conclusion of an entertainment; they may also be admitted in the *pas* of four, six, &c. though in my opinion it be ridiculous even in this case to prefer the display of bodily strength and agility to expression and sentiment. But such figures must give way to nature in what we call *ballets d'action*. An instance, though perhaps not very forcible, may serve to elucidate and support my argument.

"At the sudden and unexpected appearance of some young fauns, a troop of nymphs take themselves to flight with equal affright and precipitation. The former are in pursuit of the latter with that eagerness which the very hope of pleasure can inspire. Now they stop to observe what impression they have made on the nymphs; these at the same time, and for a similar reason, check their career; with fear they survey their pursuers, endeavour to guess at their intentions, and provide for a retreat to some spot, where they may rest secure from the dangers that threaten them. Both troops now join, the nymphs resist, defend themselves, and at last effect their escape with no less swiftness than dexterity.

"This I call a busy active scene, in which the dance, as it were, should speak with energy. Here studied and symmetrical figures cannot be introduced, without a manifest violation of the truth, without destroying

Dance. destroying the rules of probability, and without weakening the action and lessening the effect.—This scene should be conspicuous; for its beautiful disorder, and the art of the composer, must here be the handmaid of nature.

“A ballet-master, devoid of taste and discernment, will make of this a mechanical piece of dancing, and thus deprive it of the effect it was calculated to produce for want of entering into the spirit of it. His nymphs and fauns will be arranged upon a parallel line: he will place the former in attitudes awkwardly uniform, and insist on the latter holding up their arms to an even altitude; rather than deviate from the beaten path, and the antique rules of opera-dancing, he will cautiously avoid to have, on the right and left, his nymphs placed in unequal numbers, but will reduce a scene of action, which ought to be supported with spirit, to an exercise equally affected and uninteresting.

“Perhaps some ill-disposed critics, so far strangers to the art as not to judge of it from its various effects, will maintain, that the above scene should present only two different objects, the one portrayed in the love-sick fauns, the other expressed by the affright of the nymphs. But how many shades may serve to embellish those pictures? how varied may be the strokes of the pencil? how opposite the lights? and what a number of tints ought to be employed in order to draw from this twofold situation a multiplicity of images, each more lively and spirited than the other?

“As all men share the same passions, and these differ in proportion to their sensations and feelings, they may therefore be worked upon more or less powerfully in proportion as they manifest themselves outwardly with more or less force and impetuosity. This principle once acknowledged, and nature indeed enforces it daily, it would certainly be more to the purpose to diversify the attitudes and vary the expression; for then the pantomime action of each personage would be divested of a disgusting uniformity. The truth of imitation and the skill of the painter would conspicuously appear in giving a different aspect to the features, some of them expressing a kind of ferocity, others betraying less eagerness, these casting a more tender look; and to the rest, the languishing air of voluptuousness. The sketch of this first picture naturally leads to the composition of the second: here some nymphs appear divided between fear and desire; there some others express by the contrast of their attitudes the various emotions of their soul. Some are more scornful than their companions, whilst others betray a curiosity equal to their fears. This ensemble gives life to the whole picture, and is the more pleasing that it is perfectly consistent with nature. From this exposition, you will not hesitate to agree with me, that symmetry, the offspring of art itself, should never find place in the *ballets d'action*.

“I shall beg leave to inquire of all those who reason from habitual prejudice, whether they will look for their favourite symmetry in a herd of sheep flying from the wolf, or amongst wretched peasants leaving their huts and fields, in order to shelter themselves from the fury of a party of enemies? By no means. But the art lies in concealing art itself: my aim is by no means to introduce disorder and confu-

sion; on the contrary, I will have regularity even in irregularity. What I most insist on is, the introducing of well concerted groups, situations forcibly expressed, but never beyond nature, and above all, a certain ease in the composition, which betrays not the labour of the composer. As for the figures, they are likely to please only in proportion as they quickly succeed each other, and are devised with equal taste and elegance.”

A ballet perfect in all its parts, our author proceeds to observe, is a picture drawn from life, of the manners, dresses, ceremonies, and customs of all nations. It must therefore be a complete pantomime, and through the eyes speak, as it were, to the very soul of the spectator. If it wants expression, if it be deficient in point of situation and scenery, it degenerates into a spectacle equally flat and monotone.

According to Plutarch, a ballet is, if the expression may be allowed, a mute conversation, or a speaking and animated picture, whose language consists of motions, figures, and gestures.—These figures, says our author, are unlimited in their number, because there are a thousand things that the ballet may express. Phrynicus, one of the oldest tragedy writers, says, that he could find in our ballet as many figures as the sea rolls waves in a high winter tide.

A well composed ballet, therefore, may do without the assistance of words: M. Noverre even remarks that these only serve to weaken the action, and partly destroy its effects. He has no opinion of a pantomime which, in order to be understood, must borrow the help of a verbal explanation. “Any ballet whatever (says he) destitute of intrigue, action, and interest, displaying nothing more than the mechanical beauties of the art, and though decorated with a pompous title, unintelligible throughout, is not unlike those portraits and pictures to which the painters of old subscribed the names of the personages and action they meant to represent: because they were imperfect in point of imitation, the situations weakly expressed, the outlines incorrect, and the colours unseemly.

“When dancers shall feel, and, Proteus-like, transform themselves into various shapes to express to the life the conflict of passions; when their features, their very looks, shall speak their inward feelings; when extending their arms beyond the narrow circle prescribed by the rigid rules of pedantry, and with equal grace and judgment giving them a fuller scope, they shall by proper situations describe the gradual and successive progress of the passions; when, in fine, they call good sense and genius to the assistance of their art; then they may expect to distinguish themselves: explanatory speeches will become useless; a mute but powerful eloquence will be substituted to much better effect; each motion will be a sentence; every attitude will portray a situation; each gesture convey a thought, and each glance a new sentiment: every part will please, because the whole will be a true and faithful imitation of nature.

A ballet, in whatever style it may be, should, according to Aristotle, be composed, as well as poetry, of two different parts, which he calls parts of quality and parts of quantity. Nothing exists in nature without matter, form, and figure: the ballet therefore becomes a mere nonentity, if it be deficient in any of

Dance.

those essential parts which mark and constitute the being of any one thing animate or inanimate. The matter here is the subject intended for representation; its form consists in the ingenious distribution of the plan; and the various compounding parts constitute its figure. Form therefore contains the parts of quality, and the extent the parts of quantity.

Thus it appears, that ballets are in some degree subject to the rules of poetical composition. They, nevertheless, differ from tragedies and comedies, in that the former are not subject to the three unities of time, place, and action: Yet they require an unity of plot, in order that the various scenes may meet and end on the same point.—The ballet, therefore, may be termed the brother of the drama, though not restrained to its stricter rules, which only serve to cramp the imagination, check its flight, and confine genius; and if adhered to, must set aside all thought of composition of ballets, by depriving them of their chief ornament, pleasing variety.

M. Noverre considers tragedy as the subject most suitable for the art of dancing. The former abounds in noble incidents, situations, &c. and these produce the best stage effects. Besides, the passions are more forcibly expressed by great characters than by common men: the imitation is of course less difficult, the action in the pantomime more significant, natural, and intelligible.

“The business of a skilful master (he observes) is to foresee, as it were at one glance, the general effect that may result from the ensemble, and never give the preference to one single part over the whole. The only way for him to bestow his thoughts on the greatest number, is to forget for a while the principal characters of the drama; if his whole attention should entirely be taken up with the parts of his first dancers of both sexes, the action is suspended, the scenes are slow in their progress, and the whole performance must fall short of its desired effect.

“In the tragedy of Merope by Voltaire, the principal characters are Merope, Polifonte, Egiste, and Narbas: But although the parts of the inferior actors are not of equal importance, yet they all concur to the general action, and to the progression of the drama, which would appear deficient in some parts, should either of those characters be wanting in the representation. No useless personage should be obtruded on the stage. Every thing therefore that may tend to weaken the effect of the drama ought to be carefully avoided, and only that number of actors introduced which is barely requisite for the execution of the performance.

“A ballet is a production of the same kind. It must be divided into acts and scenes, each of which, as well as the act itself, must have its beginning, its middle, and its end; that is, in other words, exposition, plot, and denouement.

“I have observed above, that the principal performers in a ballet should be forgotten for a while: My reason is, that, in my opinion, it is easier to give striking parts to Hercules and Omphale, Ariadne and Bacchus, Ajax and Ulysses, &c. than to 24 persons in their retinue. If these have nothing to say, they are superfluous, and of course ought to be rejected; but if they are to speak, let their conversa-

tion be consonant with that of the principal character.

Dance.

“The difficulty, therefore, does not lie in assigning a primary and distinctive part to Ajax or Ulysses; since it springs naturally from the importance of their situation in the play; but in introducing the figures in a becoming style, giving them parts of more or less importance, connected with the action of the two heroes; in introducing women, some of whom will appear concerned for Ajax, and the greater number showing their partiality for Ulysses. The triumph of the latter, the former's death, present to the man of genius a series of images that vie with each other in point of interesting and picturesque situations. These, by means of a colouring skilfully contrasted, cannot but produce the most lively sensations. In fine, a ballet pantomime should be dramatic in all its parts; and the figure-dancers, who succeed to the principal performers, ought to continue the scene, not by a number of symmetrical figures and studied steps, but by that kind of animated expressions which keeps up the attention of the spectators to the main subject for which the preceding actors have prepared the audience.

“Yet, either through ignorance, or in consequence of a vitiated habit, there are but few well supported ballets. Dance is introduced for the mere purpose of dancing; the end is supposed to be answered by the mechanical motions of the feet, or by high jumping, and that the idea which people of real taste may have of a ballet is fully answered, when inactive performers are introduced in it, who mix and jostle each other, presenting a confused heap of pictures, sketched without taste, awkwardly grouped, and totally devoid of that harmony and expression, the offspring of the soul, which alone can embellish art by giving it life.”

M. Noverre, in considering the knowledge necessary for attaining perfection in the present art, observes, that mythology, ancient poetry, and chronology, ought to be the primary study of a ballet-master, who ought also to possess a genius for poetry and painting, since the art borrows all its charms from a perfect imitation of nature.

A slight knowledge of geometry cannot but prove very advantageous, as it will help the master to introduce his figures in due proportion, to calculate exactly, and execute with precision. By means of that unerring guide, he will retrench every superfluous accessory, and thus enliven the performance. Taste will introduce elegance, genius create variety, and judgment direct the whole.

What is a ballet but a piece of more or less complicated machinery, which strikes or surprises the beholder by its various effects, only in proportion as those are diversified and sudden? That chain and connection of figures, those motions succeeding each other with rapidity, those various forms turning contrary ways, that mixture of different incidents, the ensemble and harmony which mark the steps and accompany the exertions of the dancers; do not all these give you the idea of a mechanism most ingeniously contrived?

Ballets are often built on preternatural subjects; several of them require the assistance of machinery. For instance, few of the subjects taken from Ovid will

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Dance. be fit for representation, without a change of scenery, flights through the air, metamorphoses. &c. This author, therefore, must never be taken for a model, unless the ballet-master himself be an expert mechanist. None are to be found out of the capital, but journeymen and stage-sweepers, whom the patronage of some mighty son of the sock has preferred by degrees to that employment. The talents of those upstarts consist in, and reach not beyond, the capacity of putting up the lights which they were wont to snuff for many years, or letting down awkwardly a glory of the most wretched style. The theatres in Italy are not remarkable for their machinery; those of Germany, built upon the same plan, are not less deficient in point of that enchanting part of stage-exhibition; so that a ballet-master must, in these countries, find himself greatly embarrassed, if, unskilled in the mechanical arts, he cannot convey his ideas with perspicuity, by building for that purpose small models, which are better understood by the generality of workmen than the clearest verbal explanation.

The theatres of Paris and London are the best supplied with these resources. The English are very ingenious; their stage machinery is more simplified than the French, and of course produces a quicker effect. Among them all these kinds of works are most exquisitely finished; that neatness, care, and exactitude, which is remarkable throughout every part, greatly contribute to the precision of the whole. Those chef-d'œuvres of mechanism particularly display themselves in their pantomimes; which, however, are low and trivial, devoid of taste and interest, and built upon the meanest incidents. It may be said that this kind of entertainment, which is got up at a prodigious expence, is only calculated to please those eyes which are shocked at nothing; and that it would meet with no success on the French theatres, where no other pleasantries are permitted but such as is not incompatible with decency, abounds with delicacy and wit, and is nowise levelled against morals and humanity.

A composer who wishes to rise superior to the generality of ballet-masters, should study the painters, and trace them in their various manners of drawing and composing. Both arts have the same object in view, whether it be for taking likenesses, mixing the colours and preserving the clare-obscuré; or for grouping the figures properly, laying on the draperies, throwing the former into elegant attitudes, and giving them life and expression.

Upon the same principle, the knowledge of anatomy will serve to render more clear and intelligible the precepts which he has to lay down for his pupils. It will be an easy matter for him to distinguish properly between the natural and habitual defects in their conformation. These are the greatest obstacles that so often impede the progress of young beginners. Thus once knowing the cause, he will be able to remedy the evil; as his lesson and precepts will then be the result of strict attention they never can fail of becoming profitable.

Drawing is too useful in the composition of ballets for the master not to pay a serious attention to that art; it will contribute to the beauty of the forms; will give to the figures an air of novelty and elegance, animate

the groups, throw the body into graceful positions, and show the attitudes in a just precision.

A ballet-master who is no proficient in music, will make a bad choice of his airs. He will not enter into the spirit or character of them. The motions of his dancers will not beat time with that precision and delicacy which are absolutely necessary, unless he is endowed with that sensibility of organ which is more commonly the gift of nature than the result of art, and is far above what may be acquired by long practice and steady application.

A good choice of music is as essential to dancing, as the choice of words and the phrasing of a speech is to eloquence. It is the tune and time of the music that fix and determine the motion of the dancers. If the former be uniform and devoid of taste, the ballet will, like its model, be dull and unmeaning.

By this immediate connection between music and dancing, it clearly appears, that, from a practical knowledge of the former, the ballet-master will derive the greatest advantages. He will then be able to impart his thoughts to the composer; and if taste and knowledge combine together, he will either set the music himself, or at least furnish the composer with the principal outlines, to characterise the action of the dancer; as this will be varied and expressive, the ballet cannot fail of being equally so. Music well composed should paint and speak; and the dance set to those sounds, will be, as it were, the echo to repeat the words. If, on the contrary, it be mute, if it speak not to the ear of the dancer, then all sentiment and expression are banished from the performance.

As nothing can appear trifling to the man of genius, nothing should seem so to the ballet-master. It is impossible for him to distinguish himself in his profession, unless he applies to study those arts which have been just mentioned. Yet to insist that he should be master of them all in that degree of perfection which is attainable only by those who give themselves entirely up to the study of each of them in particular, would be requiring a mere impossibility.

All that can be deemed strictly requisite, therefore, is a general knowledge, a slight tincture of those sciences which, by the connection they have with each other, are likely to contribute to the improvement of the art and to its reputation. From the natural union, however, that subsists between the arts, and from the harmony which reigns amongst them, that ballet-master will ennoble his composition with the most fire, spirit, liveliness, and interest, who has most genius and imagination, and whose knowledge is most extensive.

As to performers and their personal qualifications: The first point to which it is directed to pay attention when one takes up the profession of a dancer (at least so soon as he becomes capable of reflection), is his bodily formation: If one is conscious of any natural defect which seems irremediable by art, it will be best immediately to renounce every idea that may have been formed of the advantage arising from popular approbation. But where personal defects can be reformed by application, study, or the advice and assistance of judicious masters, then it becomes an essential concern

Dance.

quickly to exert every effort, before the parts to be corrected have acquired strength and consistence, before nature has unalterably taken her bent, and the error becomes too habitual and inveterate.

Among other personal defects, there are two which deserve particular notice: The first is that of being *jarreté*, "knock-knee'd;" the other of being *arqué*, or "bow-legged."

A man is said to be *jarreté* or inknee'd when the haunches are strait, and incline inwardly, the thighs lie near, and the knees are protuberant, and so close that they touch and knock together at every step, even when the feet are at a distance; so that such a person, from the knees to the feet, makes the figure of a triangle; in people of this formation, likewise, there is a clumsiness in the inside of the ancle, a great elevation in the instep, while the *tendo Achillis* is not only very slender, but much extended in the articulation.

The other defect, of being *arqué* or bow-legged, is the opposite of the former, and exists in the same parts, namely, from the haunches to the feet, which describe a sort of bow or arch; for the haunches being in this case hollow, the thighs and knees stand open, and at a distance, so that they can never be brought in proper contact like those of a well-shaped person; their feet also are long and flat, the ancle juts out, and the *tendo Achillis* is large and closely inferted. A single view of these diametrically opposite effects, proves more forcibly than any arguments, that the instructions which might correct the errors of one of this sort of dancers, would tend only to increase the defects of the other; and that consequently their aim and study ought to be correspondently opposite.

The dancer whose defect is of the first kind, that of being *jarreté*, must use the means which art furnishes him with, to separate and widen the too closely connected parts. The first step to this end is to turn the thighs outwardly, endeavouring to move them in that position, by taking the advantage of the free rotation which the thigh bone has in the *cotyloidal* cavity of the haunches: assisted by this exercise, the knees will follow the same direction, and return as it were to their proper position. The knee-pan (which seems intended to prevent the knee from being thrown too far backward from its insertion) will stand perpendicular over the point of the foot, while the thigh and leg thus placed describe a line that will ensure firmness and stability to the whole body.

The second remedy to be used is, to keep the knees in a constant bend, and to make them appear very much stretched, without their being really so. This must be the result of long and constant practice; but when the habit is firmly contracted, it is impossible to return to the former vicious position, without causing an insupportable pain and numbness. Some dancers have been able to conceal this defect so artfully, that it was entirely undiscoverable, unless in dancing strait-capers or in very quick movements. The reason of its becoming visible at such times is, that the contraction of the muscles in the effort of leaping makes them stiff about the articulation, and forces every part into its former and natural situation; the knees thus strained, turn inwardly, and (for the time) regain their usual protuberance, which becomes an obstacle to the display

of the *entre-chat*. The more these parts connect, to the greater distance will the lower extremities be thrown; hence the legs, neither being able to beat nor cross, remain motionless at the time of the knees rolling over each other, while the *entre-chat*, being neither cut, beat, nor crossed by the feet, is deprived of that life and brilliancy which are its chief merit.

A person thus formed, should entirely renounce the *entre-chat*, *cabrioles*, and every kind of dance that requires very quick and complicated movements, as it will infallibly render him weak and powerless; for the haunches being so strait, the muscles that are attached to them (whereon the motions of the trunk depend), have not a proper and easy play, which will be always in proportion to the dimension of these bones, because then the muscles shoot out or divide from a point more distant from the centre of gravity: therefore the grander sort of dancing, and *terre à terre*, is the best adapted to such dancers; and we may add, that whatever they lose on the score of strength, they regain in elegance and address. They are luxuriant and shining in the simplest parts; easy even in difficult ones, where no great efforts are required; just in their execution; elegant in their display; and their spring is always exerted with an infinity of grace, as they dexterously employ every resource which the motion of the instep can give them. These are advantages which atone for want of personal strength; and in dancing agility and address are always preferable to the mere efforts of force.

The art of concealing or overcoming the defects of such performers as we have characterized by being *arqué* or bow-legged, is in a great measure the opposite of the former; namely, by endeavouring to bring together the parts that are too much separated, and lessening that vacancy which is particularly observable between the knees. These require no less exercise than the former in turning the thighs outwardly, and generally are less able to disguise their faults: for being more robust and vigorous, there is less pliability in their muscles, and their joints move less easily. And it must be added, if the deformity results from a natural distortion of the bone, labour will be as useless as all the aids of art will be impotent.

It was remarked, that dancers of the first class, or *jarretés*, should preserve a slight genuflexion or bend in their performance; while these, for the opposite reason, ought to keep their limbs rather extended or stretched, and to cross more closely, by that means diminishing the vacancy occasioned by the natural separation. Such dancers are nervous, lively, and brilliant in all cases which require more strength than elegance; vigour and agility may be inferred from their muscular force, and the firmness and resistance of their articular ligaments; lively in their dancing, because they cross low rather than high; and requiring on that account less space in beating time, they perform it with more liveliness: they display more brilliancy, because the light becomes visible between the limbs at the moment of crossing and recrossing; and this is precisely the *clair-obscur* of dancing; for if the time in the *entre-chat* or cross-caper is neither cut nor beat, but rolled or huddled over, there is no light to give distinction to the shadows, and the limbs, so closely joined, present an indistinct and effectless mass.

These

Dance.

These dancers have less address than the others, as they generally depend on their strength; and indeed that strength is a constant obstacle to ease and pliancy; if it forsakes them a single moment, they appear awkward and ridiculous: nor can they conceal their situation by any trifling display; that requiring mere address, would give them time to recover, which their want of natural elasticity otherwise prevents.

Dancers who are *jarretés*, are weak, slender, and delicate; the others, strong and vigorous, large made, and nervous. It is a common opinion, that stout, squat-built men are heavy and sluggish; which they doubtless are in respect of bodily weight; but the notion is erroneous so far as regards dancing; for activity owes its very existence to muscular strength, and every man who has not a requisite share of that will always fall heavy. The reason is evident; the weak parts, in the instant of falling, not being able to resist the stronger (that is, the weight of the body, which acquires a *momentum* in proportion to the height it falls or descends from), yield and bend; and it is at the moment of relaxation or flexion that the noise of the fall is heard; a circumstance greatly lessened, or rather entirely avoided, when the body is able to maintain itself in a perpendicular direction; and while the muscular spring is sufficient to oppose that descending force, and vigorously resist a shock which would otherwise destroy it.

Nature has not exempted the fair sex from those imperfections we have been taking notice of; but art, and the use of petticoats, come fortunately to the help of the female dancer. The hoop conceals a multitude of defects, which the critic's curious eye cannot ascend to discover. Most of them dance with their knees open, as if they were naturally *arquées*; but, thanks to this bad habit, and to the petticoats, they appear more brilliant than the men; because, as they beat from the lower part of the leg, they perform the time quicker than we, who, concealing nothing from the spectator, are obliged to beat at a greater extent, and to do it originally from the haunch.

The vivacity of the sex contributes much to the brilliancy of their execution; though certainly not less is owing to the petticoats, which, by concealing the length of the limbs, catch the attention, and fix it more advantageously: thus all the fire of the beats being united in one point, appears more lively and brilliant; while the eye embraces one object only, without being hurried and confused in proportion to the space it has to overlook.

To perfection in dancing, M. Noverre observes, nothing is more necessary than the outward turn of the thigh; yet nothing is more natural to mankind than the contrary position; it is born with us. It will be superfluous, in establishing this truth, to cite for example the Asiatics, the Africans, or any people who dance, or rather leap and move, without art or principle. If we attend only to children, or the rustic inhabitants of the villages, we shall see that they all turn their feet inwardly. The other position is purely invention; and a proof, far from equivocal, of this fault being an imaginary one, is, that a painter would transfere as much against nature as the rules of his art, were he to place the feet of his portrait in the situation of a dancer's. It is plain, then, that to dance

elegantly, walk gracefully, or address ourselves with ease and manliness, we must absolutely reverse the nature of things; and force our limbs, by artificial applications equally tedious and painful, to assume a very different situation from what they originally received.

Such a change, however necessary in this art, can only be accomplished by laying its foundation in the earliest stages of infancy, when every bone and muscle is in a state of pliability, and capable of receiving any direction which we choose to give them.

The difficulty of attaining the outward position of the limbs, is owing to our ignorance of the proper arts to be employed. Most beginners persuade themselves that it is to be acquired by forcing the feet to turn outward; and though this part may readily take such a direction, from their suppleness, and being so easily moved at their articulation with the leg: yet this method is so far false, as it tends to displace the ankle-bones, and besides has not any effect upon either the knees or thighs.

Neither is it possible to throw the knees outwardly without the assistance of the thigh. The knees have only two motions, bending and extension; the one drawing the leg backward, the other throwing it forward: they have no power, therefore, of themselves to determine or assume an outward position; but must eventually depend on the thigh, which entirely commands all the lower parts of the body, and turns them in consequence of its own rotatory motion; so that, in fact, whatever motion or position that takes, the knee, foot, and leg, are obliged to follow.

M. Noverre condemns the *tourne-haunch* as a clumsy and useless invention, which, instead of producing any good effect, serves only to lame those who use it, by giving a distortion to the waist, much more disagreeable than what it was intended to remove.

The simplest and most natural means are those which reason and good sense ought to adopt; and of these a moderate but continual exercise is indispensable: the practice of a circular motion or turning of the legs, both inwardly and outwardly, and of bodily beating at full extent from the haunch, is the only certain exercise to be preferred. It insensibly gives freedom, spring, and pliancy; while the motions acquired by using the machine have more an air of constraint, than of that liberty and ease which should shine conspicuous in them.

It has been maintained, that a strong and vigorous person ought to spring higher and better than a slender or weaker man. But experience (says M. Noverre) daily proves the contrary. We see many dancers, who cut the time very strong, who beat with much vigour and firmness, and yet cannot spring to any considerable perpendicular elevation: for an oblique elevation, or on one side, ought here to be distinguished from the former; the latter is faint, and depends entirely upon address in the dancer. There are others, again, whose slender form renders their execution less bold, and rather elegant than forcible, rather lively than nervous, but who can rise to an extraordinary height: it is to the shape and formation of the foot, and to the length and elasticity of the tendon, that this power of elevation is originally owing; the knees, the loins, and the arms, all co-operate in this action; the stronger the pressure upon the muscles, the greater is the re-action, and the spring

Dance.

Dance.

spring or leap is proportionably high. The alternate motion of the knees participates with those of the instep and *tendo Achillis*, though the latter are still the most essential auxiliaries; the muscles of the trunk lend their assistance, and preserve the body in a perpendicular direction; while the arms, running imperceptibly to the mutual assistance of all the parts, serve as wings to counterbalance the machine.

Observe all those animals that have long and slender ancles, as stags, roebucks, sheep, cats, monkeys, &c. and you will perceive that they have a quickness and facility of springing and leaping, which animals differently formed in that part can never obtain.

But were a man endowed with all the other qualities essential to the perfection of the art, yet still without strength and firmness in his loins he never can be a good dancer. This strength is certainly the gift of nature; but it may be much improved by the assiduity of an able teacher. We daily see dancers who have neither perpendicularity nor firmness, and whose performance is altogether unstable and irregular; and we likewise see others, who, though they possess not so great a degree of native force, have all the appearance of sinewy firmness and muscular strength, in their haunches, back, and loins. Art has furnished a substitute for nature, in the lessons of some excellent teacher, who has convinced them, that when once they forego an attention to the loins, it is impossible to keep themselves in a right perpendicular line; and therefore all their exertions will be devoid of taste: that all wavering and instability in this part is inconsistent with perpendicularity and firmness, and will certainly cause distortion of the shape and waist: that the depression and sinking of the body deprives the lower parts of that liberty which is necessary to their easy motion: that hence the body is undetermined in its positions; frequently drags the limbs; and constantly loses the centre of gravity; and therefore cannot recover an equilibrium, but after various efforts and contortions totally repugnant to the graceful and harmonious motions of good dancing.

Such is the performance of those dancers who have no strength in their loins, or at least do not exert what they possess. In order to dance well, the body should be firm and steady; it should particularly be motionless and free from wavering while the legs are in exertion; for when the body follows the actions of the feet, it displays as many grimaces and distortions as the legs execute different steps; the performance is then robbed of its ease, uniformity, harmony, exactness, firmness, perpendicularity, and equilibrium; in a word, of all those beauties and graces which are so essential to make dancing give pleasure and delight.

Many dancers are of opinion, that to be soft and luxuriant, the knees must be bent very low. But in this they are most certainly mistaken; for a more than ordinary flexion of the knees gives rather a dryness and insipidity to dancing; and a dancer may be very inelegant, and jerk, as it were, all his movements, as well in bending very low as in not bending at all. The reason will appear natural and evident, when we reflect, that the time and motions of the dancer are strictly subordinate to the time and movements of the music; pursuing this principle, it is not to be doubted, that when the flexion of the knees is greater than what the

air or time of the dance requires, the measure then drawls along, languishes, and is lost. To recover and catch again the time which this unnecessary flexion had destroyed, the extension of the knee must be equally quick; and it is this sudden transition which gives such a harshness and sterility to the execution, and renders it as disgusting as the opposite fault of stiffness and inflexibility.

That luxuriant softness requires more to its perfection than merely an exact flexion and extension of the knees; the spring of the instep must add its assistance, while the loins must balance the body to preserve these springs in proper bounds. It is this rare harmony of motion (says M. Noverre) which has procured the celebrated Dupré the glorious title of the *God of Dance*.

There are many dancers, and of an inferior class only, who can display a great variety of steps, badly enough chosen to be sure, and often displayed without either judgment or taste; but it is very uncommon to find among them that exactness of ear (that rare but innate talent of a dancer), which gives life to and stamps a value upon steps, and which diffuses over all their motions a spirit that animates and enlivens them.

There are some ears stupid and insensible even to the most simple, plain, and striking movements; there are others, more cultivated or refined, that can feel and comprehend the measure, but cannot seize its intricacies; and there are others again to whom the most difficult airs and movements are easy and intelligible, and at once comprehended. It is nevertheless certain, that a dancer may have a very perfect and nice feeling, and yet not make his feelings intelligible to the audience, if he has not the art of commanding those resources which depend upon a proper exertion of the *coup de pied*: awkwardness becomes visible where the exactest proportion was necessary; and every step which would have been becoming, and produced the happiest effect, had it been smartly introduced at the conclusion of the measure, will now be cold and lifeless, if all the limbs are in motion at once. It requires more time to move the whole body than to exert any single member; the flexion and extension of the instep is more readily and quickly made than the reciprocal motion of all the joints. This principle allowed, that the dancer is destitute of precision, who (supposing he possesses a musical ear) knows not how to time his steps; the elasticity of the instep, and the more or less active play of the muscles, add to the natural sensibility of the ear, and stamp value and brilliancy on the dance. The joint charms of the harmony springing from the movements of the music, and the motions of the dancer, captivate even those whose ears are the most insensible and least susceptible of musical impression.

There are some countries where the inhabitants in general are endowed with this innate musical taste. The Palatinate, Wirtemberg, Saxony, Brandenburg, Austria, and Bohemia, supply the orchestras of the German princes with many excellent musicians and eminent composers. The Germans, indeed, are born with a very lively and just taste for music, and have in them the seeds of true harmony; nothing is more common than to hear concerts, both in the streets and in the shops of their mechanics, performed with the greatest skill and exactness.

Such a natural and native taste for music as we have been

Dance.

Dance.

been mentioning, is usually accompanied by, or includes in it, a similar one for dancing; they are kindred arts; the tender and harmonious accents of the one excite and produce the agreeable and expressive motions of the other, and their union entertains the eye and ear with animated pictures of sentiments; these two senses, again, convey to the heart the interesting images which affect them, while the heart, in its turn, communicates them to the mental faculty: thus the pleasure resulting from the harmony and intelligence of these two arts, enchants the spectator, and fills him with the most seducing pleasures of voluptuousness.

Dancing is probably nowhere varied to such a degree as in the provinces of Germany; where the well known dances of one village are strangers in the adjacent hamlet; their songs of mirth and merriment have no less different airs and movements, though they are all marked with that of gaiety. Their dances are pleasing and engaging, because the offspring of simple nature; their motions express joy and pleasure; and the exactness with which the whole is performed, gives a peculiar agreeableness to their steps, gestures, and attitudes. Do they spring?—a hundred persons, assembled round an oak, or some ancient pillar, seize the time at one instant, bound up and descend with the same exactness. Do they wish to mark the measure by a *coup-de-pied*?—all strike with one consent; or when they catch up their women, you see them all in the air at an equal height, nor do they descend but at the precise note that marks the time.

The counter-point, which is doubtless the touchstone of a delicate ear, is to them an object of no difficulty; hence their dance is so particularly animated, and the nicety of that organ has the effect of giving their different motions an air of gaiety and variety altogether exquisite.

A dancer whose ear is untuned to harmony, displays his steps without order or regularity, wanders from his part, and pursues the measure without being able to reach it: devoid of judgment, his dancing has neither sentiment nor expression; and the music which should direct his motions, regulate his steps, and guide his time, serves only to expose his imperfections and insufficiency. The study of music should therefore be applied to for the purpose of obviating this defect, and giving more sensibility and exactness to the organs of hearing.

It will not be expected that we should proceed to give a description of all the intricacies and combinations of steps that are or can be exerted in dancing; or enlarge on the mechanical particulars of the art. A dissertation on the latter would be insipid and disgusting; for the language of the feet and limbs is addressed to the eyes, not to the ears: and a detail of the former would be endless, since every dancer has his peculiar manner of joining or varying the time. It may be sufficient just to mention on this point, that it is in dancing as in music, and with dancers as with musicians: Dancing does not abound with more fundamental steps than music with notes; but there are octaves, breves, semibreves, minims, crotchets, double and treble crotchets; times to count, and measures to follow. This mixture, however, of a small number of steps, and a few notes, furnishes dancers with a mul-

titude of connexions and a variety of figures; taste and genius will always find a source of novelty in arranging them in different manners, and to express various ideas. Slow and lengthened, or quick and precipitate steps, and the time correspondently varied, give birth to this endless diversity.

Country-DANCE. See *COUNTRY-DANCE.*

Country-Dance, commonly so written, and hence seeming to imply a rustic way of dancing borrowed from country people or peasants, is by others supposed to be a corruption of the French *Contre-danse*, where a number of persons placing themselves opposite one to another begin a figure.

Rope-DANCER, (*schœnobates*), a person who walks, leaps, dances, and performs several other feats, upon a small rope or wire.

The ancients had their rope-dancers as well as we. These had four several ways of exercising their art: The first vaulted, or turned round the rope like a wheel round its axis, and there hung by the heels or neck. The second flew or slid from above, resting on their stomach, with the arms and legs extended. The third ran along a rope stretched in a right line or up and down. Lastly, the fourth not only walked on the rope, but made surprising leaps and turns thereon. They had likewise the *cremnobates* or *orobates*; that is, people who walked on the brink of precipices. Nay more, Suetonius in *Galba*, c. 6. Seneca in his 85th Epistle, and Pliny, lib. viii. c. 2. make mention of elephants, that were taught to walk on the rope.

St Vitus's DANCE. See *MEDICINE Index.*

DANCETTE, in *Heraldry*, is when the outline of any bordure, or ordinary, is indented very largely, the largeness of the indentures being the only thing that distinguishes it from indented.

DANCING. See *DANCE.*

DANCING Girls of Egypt. See *ALME.*

Dancing girls are employed all over the east, as affording great diversion at all public entertainments. They are all prostitutes; and by the laws of their society, are bound to refuse no one for their price, which is rated according to their beauty and other accomplishments. There are even particular sets of them appropriated to the service of the Gen^oo temples, and the use of the Bramin priests who attend them. These poor creatures say that they were first debauched by their *god*, and afterwards by him assigned over to the use of the priests who belong to his temples.

These dancing-girls, whether in a settled or unsettled condition, live in a band or community under the direction of some superannuated female of the same profession, under whom they receive a regular education, and are trained up in all the arts of love and pleasing, like scholars in an academy. Thus they acquire the art of captivating the affections of the other sex to such a degree, that nothing is more common than for one of the princes or chief people of the country to take a liking to one of these girls, and waste immense sums on her, though at the same time their own haram is stocked with beauties far superior, and who are, besides possessed of the natural modesty of the sex, to which the others have not the smallest pretensions. Thus some of these girls acquire immense wealth. In the neighbourhood of

Dance
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Dancing.

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Dancing.

of Goa, for instance, on a part of the continent bordering on the district of that island, the dancing-girls founded a village, after being driven from Goa by the zeal of the archbishop. Here they reside in a body corporate, and attend the parties of pleasure of the noblemen and principal inhabitants, for it is not every one's purse that can afford them. Here many of them acquire considerable fortunes by this scandalous traffic, and throw it into a common stock for the sake of carrying on merchandise; being concerned in shipping and the most profitable voyages, for which they have regular factors and brokers.

The dress of these women varies according to the country they live in; but in all it is the most gorgeous imaginable. They are loaded with jewels, literally from top to toe, since even on their toes they wear rings. Their necks are adorned with carcanets, their arms with bracelets, and their ancles with chains of gold and silver, often enriched with precious stones. They also wear nose jewels, which at first have an odd appearance, but to which the eye is soon reconciled. In Indostan, these dancing-girls, as well as the other women of the country, have a peculiar method of preserving and managing their breasts, which at the same time makes no inconsiderable part of their finery. They inclose them in a pair of hollow cases, exactly fitted to them; made of very light wood, linked together and buckled at the back. These at once confine their breasts so that they cannot grow to any disgustfully exuberant size; though, from their smoothness and pliancy, they play so freely with every motion of the body, that they do not crush the tender texture of the flesh in that part, like the stiff whalebone stays in use among the Europeans. The outside of them is spread over with a thin-plate of gold or silver, or set with gems, if they can afford it. Another occasional ornament the dancing-girls put on, particularly when they resort to their gallants, viz. a necklace of many loose turns, composed of flowers strung together, which they call *mogrees*, somewhat resembling Spanish double jessamy, but of a much stronger and more agreeable fragrant odour, and far preferable to any perfumes. "They have nothing," says Mr Grose, "of that nauseous boldness which characterizes the European prostitutes, their style of seduction being all softness and gentleness."

With regard to the performances of these women as dancers, we have various accounts. The author of *Memoirs of the late War in Asia*, acquaints us "that their attitudes as well as movements are not ungraceful. Their persons are delicately formed, gaudily attired, and highly perfumed. By the continuation of wanton attitudes, they acquire, as they grow warm in the dance, a frantic lasciviousness themselves, and communicate, by a natural contagion, the most voluptuous desires to the beholders." Mr Ives seems to have been very cool on this subject. "I could not (says he) see any thing in their performance worthy of notice. Their movements are more like tumbling or showing postures than dancing. Their dress is thin and light; and their hair, necks, ears, arms, wrists, fingers, legs, feet, and even their toes, are covered with rings of gold and silver, made after a clumsy manner. They wear two rings in their noses; and by their staring looks and odd gesticulations, you would rather suspect

them to be mad women than morris-dancers. The band of music that attends them is not less singular in its way: it is chiefly composed of three or four men, who hold two pieces of bell-metal in their hands, with which they make an incessant noise; another man beats what he is pleased to call a drum; and that they may not want vocal music to complete the band, there are always two others appointed to sing. These last generally lay in their mouths a good loading of betel-nut before they begin; which, after having been well chewed, tinges the saliva with such a redness, that a stranger would judge them to bleed at the mouth by too violent an exertion of their voice. These gentry are called *ticky tau* boys, from the two words *ticky tau*, which they continually repeat, and chant with great vehemence. The dancing-girls are sometimes made use of in their religious ceremonies, as when the priests bring forth the images of their gods into the open fields on a car ornamented with lascivious figures, these girls dance before the images amidst a great crowd of people; and having been selected for their superior beauty, are very profitable to their masters the priests, who are said to prostitute them to all comers."

Mr Grose informs us, that "these dances would hardly at first relish with Europeans, especially as they are accompanied with a music far from delightful, consisting of little drums called *gungums*, cymbals, and a sort of fife, which makes a hideous din, and are played on by men, whose effeminacy, grimaces, and uncouth shrivelled features, all together shock the eye and torture the ear. However by use we become reconciled to the noise, and may observe some not unpleasing airs, with which the dancers keep time: the words often express the matter of a pantomime dance, such as a lover courting his mistress, a procurer bringing a letter, and endeavouring to seduce a woman from one gallant in favour of another; a girl, timorous and afraid of being caught in an intrigue. All these love-scenes the girls execute in character dances, and with no despicable expression, if they are proficient in their art; for then their gestures, air, and steps, are marking and well adapted. In some of their dances, even in public, modesty is not much respected by the lascivious attitudes into which they throw themselves, without exposing any nudity; being richly clad and bedecked with jewels after their manner. But in private parties to which they are called, as in gardens, they give themselves a great loose, and have dances in reserve; in which, though still without any grossness in discovering their bodies, they are mistresses of such motions and lewdness of looks and gestures as are perhaps more provoking.

DANDELION. See LEONTODON, *BOTANY Index*.

DANDINI, PIETRO, an eminent painter, was born at Florence in 1646, and received his first instructions in the art of painting from Valero Spada, who excelled in small drawings with a pen. Whilst he was under the care of that artist, he gave such evident proofs of a ready genius, that he was then placed as a disciple with his uncle Vicencio Dandini, a master of great reputation through all Italy, who had been bred up under Pietro da Cortona. He afterwards travelled through most of the cities of Italy, studying the works of those who were most distinguished; and resided for a long time at Venice, where he copied the

Dancing

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Dandini.

Dandini
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Danet.

paintings of Titian, Tintoretto, and Paolo Veronese. He next visited Parma and Modena, to design the works of Corregio; omitting no opportunity that might contribute to improve his hand or his judgment. When he returned to Florence, the grand duke Cosmo III. the grand duchess Victoria, and the prince Ferdinand, kept him perpetually employed, in fresco painting as well as in oil; his subjects being taken not only from sacred or fabulous history, but from his own invention and fancy, which frequently furnished him with such as were odd and singular, and especially with whimsical caricatures. He died in 1712.—This master had a most extraordinary talent for imitating the style of even the most celebrated ancient painters of every school, particularly Titian, Veronese, and Tintoretto; and with a force and elegance, equal to his subjects of history, he painted portraits, landscapes, architecture, flowers, fruit, battles, animals of all kinds, and likewise sea-pieces; proving himself an universal artist, and excellent in every thing he undertook.

He had a son, Octavio, who proved not inferior to him in any branch of his profession, and was an honour to his family and his country.

DANDINI, *Cesare*, history painter, was born at Florence; and was the elder brother and first instructor of Vincentio Dandini, the uncle of Pietro. This master had successively studied as a disciple with Cavalier Curadi, Passignano, and Cristofano Allori; from whom he acquired a very pleasing manner of designing and colouring. He was extremely correct in his drawing, and finished his pictures highly. Several noble altarpieces in the churches of Florence are of his hand; and one, which is in the chapel l'Annonciata, is particularly admired.

DANDOLO, HENRY, doge of Venice, a brave admiral and politician. With a Venetian fleet he took Constantinople in 1203, and had the moderation to refuse to be emperor. He died in 1250.

DANEGELT, an annual tax laid on the Anglo-Saxons, first of 1s. afterwards of 2s. for every hide of land throughout the realm, for maintaining such a number of forces as were thought sufficient to clear the British seas of Danish pirates, which heretofore greatly annoyed our coasts.

DANEGELT was first imposed as a standing yearly tax on the whole nation, under King Ethelred, A. D. 991. That prince, says Camden, *Britan.* 142. much distressed by the continued invasions of the Danes, to procure a peace, was compelled to charge his people with heavy taxes, called *Danegelt*.—At first he paid 10,000l. then 16,000l. then 24,000l. after that 36,000l. and lastly 48,000l.

Edward the Confessor remitted this tax: William I. and II. reassumed it occasionally. In the reign of Henry I. it was accounted among the king's standing revenues; but King Stephen, on his coronation-day, abrogated it for ever.

No church or church-land paid a penny to the *danegelt*; because, as is set forth in an ancient Saxon law, the people of England placed more confidence in the prayers of the church than in any military defence they could make.

DANET, PETER, abbot of St Nicholas de Verdun, was one of the persons chosen by the duke of Montau-Vol. VII. Part I.

Daniel.

He had a share in Phædrus, which he published with notes and explications in Latin. He also wrote a dictionary in Latin and French, and another in French and Latin. He died at Paris in 1709.

DANIEL, the fourth of the greater prophets, was born in Judea, of the tribe of Judah, about the 25th year of the reign of Josiah. He was led captive to Babylon, with other young Hebrew lords, after the taking of Jerusalem by Nebuchadnezzar, who took them into his service. That prince gave them masters to instruct them in the language and sciences of the Chaldeans, and ordered them to be fed with the most delicate viands: but they, fearing that they should eat meat forbidden by the law of Moses, desired the king's officers to allow them only pulse. The wisdom and conduct of Daniel pleasing Nebuchadnezzar, that prince gave him several posts of honour. It is commonly believed, that this prophet, when but 12 years of age, made known the innocence of the chaste Susannah: but the learned are not agreed, that the young Daniel, who confounded the old men, was the same with this prophet. However, he explained Nebuchadnezzar's dream of the mysterious statue, which foretold the four great monarchies; on which account he was made prefect of the province of Babylon. In the reign of Darius, the king of the Medes, he refused to adore the golden statue of the king, and was cast into the lions den, when those beasts, though pinched with hunger, did him no manner of hurt. And he explained the characters written on the wall of the room where Belshazzar was feasting.

It is believed that Daniel died in Chaldea, and that he did not take advantage of the permission granted by Cyrus to the Jews of returning to their own country. St. Epiphanius says he died at Babylon; and herein he is followed by the generality of historians.

The prophecies of Daniel concerning the coming of the Messiah, and the other great events of after-times, are so clear and explicit, that, as St. Jerome tells us, Porphyry objected to them, that those which related to the kings of Syria and Egypt, chap. xi. must have been written after the times of Antiochus Epiphanes; whereas his prophecy was translated into Greek 100 years before his time, and the translation was in the hands of the Egyptians, who had no great kindness for the Jews and their religion. And those prophecies foretelling the success of Alexander, chap. viii. 5. xi. 3. were shown to Alexander by the Jews, in consequence of which they obtained several privileges from him; (*Ant.* lib. xi. c. 8.) The style of Daniel is not so lofty and figurative as that of the other prophets; it is clear and concise, and his narrations and descriptions simple and natural: in short, he writes more like a historian than a prophet.

The Jews do not reckon Daniel among the prophets; part of his book, that is, from the fourth verse of his second chapter to the end of the seventh chapter, was originally written in the Chaldee language; the reason of which was, that in that part he treats of the Chaldean or Babylonish affairs: all the rest of the book is in Hebrew. The first six chapters of the book of Daniel are a history of the kings of Babylon, and what befel the Jews under their government. In the last six he is altogether prophetic, foretelling not

Daniel,
Danmonii.

only what should happen to his own church and nation, but events in which foreign princes and kingdoms were concerned.

DANIEL, *Samuel*, an eminent poet and historian, was born near Taunton in Somersetshire in the year 1562, and educated at Oxford; but leaving that university without a degree, he applied himself to English history and poetry under the patronage of the earl of Pembroke's family. He was afterwards tutor to the lady Anne Clifford; and, upon the death of Spenser, was created poet-laureat to Queen Elizabeth. In King James's reign he was appointed gentleman extraordinary, and afterwards one of the grooms of the privy-chamber to the queen consort, who took great delight in his conversation and writings. He wrote an history of England, several dramatic pieces, and some poems; and died in 1619.

DANIEL, *Gabriel*, a celebrated Jesuit, and one of the best French historians, was born at Rouen in 1649. He taught polite literature, philosophy, and divinity, among the Jesuits; and was superior of their house at Paris, where he died in 1728. There are a great number of his works published in French, of which the principal are, 1. An History of France, of which he also wrote an abridgment in nine volumes, 12mo. 2. An History of the French Militia, in two vols 4to. 3. An Answer to the Provincial Letters. 4. A Voyage to the World of Descartes. 5. Letters on the doctrines of the Theorists, and on Probability. 6. New difficulties relating to the knowledge of Brutes: And, 7. A theological treatise on the Efficacy of Grace.

DANMONII, an ancient British nation, supposed to have inhabited that tract of country which is now called *Cornwall* and *Devonshire*, bounded on the south by the British ocean, on the west by St George's channel, on the north by the Severn sea, and on the east by the country of the Durotriges. Some other British tribes were also seated within these limits; as the Cofini and Ostidamni; and, according to Mr Baxter, they were the keepers of their flocks and herds. As the several tribes of the Danmonii submitted without much resistance to the Romans, and never joined in any revolt against them, that people were under no necessity of building many forts, or keeping many garrisons in their country. This is the reason why so few Roman antiquities have been found in that country, and so little mention is made of it and its ancient inhabitants by Roman writers. Ptolemy names a few places, both on the sea-coasts and in the inland parts of this country, which were known to, and frequented by, the Romans. The most considerable of these places are the two famous promontories of Bolerium and Ocrinum, now the Land's-end and the Lizard; and the towns of Ica Danmoniorum and Tamare, now Exeter and Saltash. As the Danmonii submitted so tamely to the Romans, they might perhaps permit them to live, for some time at least, under their own princes and their own laws; a privilege which we know they granted to some other British states. In the most perfect state of the Roman government in Britain, the country of the Danmonii made a part of the province called Flava Cæsariensis, and was governed by the president of that province. After the departure of the Romans, kingly government was immediately revived

among the Danmonii in the person of Vortigern, who was perhaps descended from the race of their ancient princes, as his name signifies in the British language a chieftain or the head of a family.

DANTE, ALIGHIERI, one of the first poets of Italy, was born at Florence in 1265, of an ancient and honourable family. Boccaccio, who lived in the same period, has left a very curious and entertaining treatise, on the life, the studies, and manners of this extraordinary poet, whom he regarded as his master, and for whose memory he professed the highest veneration. This biographer relates, that Dante, before he was nine years old, conceived a passion for the lady whom he has immortalized in his singular poem. Her age was near his own; and her name was Beatrice, the daughter of Folco Portinari, a noble citizen of Florence. The passion of Dante, however, like that of his successor Petrarch, seems to have been of the chaste and platonic kind, according to the account he has himself given of it, in one of his early productions, entitled *Vita Nuova*; a mixture of mysterious poetry and prose; in which he mentions both the origin of his affection and the death of his mistress, who, according to Boccaccio, died at the age of 24. The same author asserts, that Dante fell into a deep melancholy in consequence of this event, from which his friends endeavoured to raise him, by persuading him to marriage. After some time he followed their advice, and repented it; for he unfortunately made choice of a lady who bore some resemblance to the celebrated Xantippe. The poet, not possessing the patience of Socrates, separated himself from her with such vehement expressions of dislike, that he never afterwards admitted her to his presence, though she had born him several children. In the early part of his life he gained some credit in a military character; distinguishing himself by his bravery in an action where the Florentines obtained a signal victory over the citizens of Arezzo. He became still more eminent by the acquisition of civil honours; and at the age of 25 he rose to be one of the chief magistrates of Florence, when that dignity was conferred by the suffrages of the people. From this exaltation the poet himself dated his principal misfortunes, as appears from the fragment of a letter quoted by Leonardo Bruni, one of his early biographers, where Dante speaks of his political failure with that liberal frankness which integrity inspires. Italy was at that time distracted by the contending factions of the Ghibellins and the Guelphs: the latter, among whom Dante took an active part, were again divided into the Blacks and the Whites. Dante, says Gravina, exerted all his influence to unite these inferior parties; but his efforts were ineffectual, and he had the misfortune to be unjustly persecuted by those of his own faction. A powerful citizen of Florence, named Corso Donati, had taken measures to terminate these intestine broils, by introducing Charles of Valois, brother to Philip the Fair king of France. Dante, with great vehemence opposed, this disgraceful project, and obtained the banishment of Donati and his partizans. The exiles applied to the pope (Boniface VIII.), and by his assistance succeeded in their design. Charles of Valois entered Florence in triumph, and those who had opposed his admission were banished in their turn. Dante had been dispatched to Rome as the ambassador

Dante.

Dante. dor of his party ; and was returning, when he received intelligence of the revolution in his native city. His enemies, availing themselves of his absence, had procured an iniquitous sentence against him, by which he was condemned to banishment, and his possessions were confiscated. His two enthusiastic biographers Boccaccio and Manetti, express the warmest indignation against the injustice of his country. Dante, on receiving this intelligence, took refuge in Sienna, and afterwards in Arezzo, where many of his party were assembled. An attempt was made to surprize the city of Florence, by a small army which Dante is supposed to have attended : the design miscarried, and our poet is conjectured to have wandered to various parts of Italy, till he found a patron in the great Candella Scala, prince of Verona, whom he has celebrated in his poem. The high spirit of Dante was ill suited to courtly dependence ; and he is said to have lost the favour of his Veronese patron by the rough frankness of his behaviour. From Verona he retired to France, according to Manetti ; and Boccaccio affirms that he disputed in the theological schools of Paris with great reputation. Bayle questions his visiting Paris at this period of his life ; and thinks it improbable, that a man, who had been one of the chief magistrates of Florence, should condescend to engage in the public squabbles of the Parisian theologians ; but the spirit both of Dante and the times in which he lived sufficiently account for this exercise of his talents ; and his residence in France at this season is confirmed by Boccaccio, in his life of our poet, which Bayle seems to have had no opportunity of consulting.

The election of Henry count of Luxemburgh to the empire, in November 1308, afforded Dante a prospect of being restored to his native city, as he attached himself to the interest of the new emperor, in whose service he is supposed to have written his Latin treatise *De Monarchia*, in which he asserted the rights of the empire against the encroachments of the Papacy. In the year 1311, he instigated Henry to lay siege to Florence ; in which enterprise, says one of his biographers, he did not appear in person, from motives of respect towards his native city. The emperor was repulsed by the Florentines ; and his death, which happened in the succeeding year, deprived Dante of all hopes concerning re-establishment in Florence. After this disappointment, he is supposed to have passed some years in roving about Italy in a state of poverty and distress, till he found an honourable establishment at Ravenna, under the protection of Guido Novello da Polenta, the lord of that city, who received this illustrious exile with the most endearing liberality, continued to protect him through the few remaining years of his life, and extended his munificence to the ashes of the poet.

Eloquence was one of the many talents which Dante possessed in an eminent degree. On this account he is said to have been employed on fourteen different embassies in the course of his life, and to have succeeded in most of them. His patron Guido had occasion to try his abilities in a service of this nature, and dispatched him as his ambassador to negotiate a peace with the Venetians, who were preparing for hostilities against Ravenna. Manetti asserts that he was unable to procure a public audience at Venice, and returned

Dante. to Ravenna by land, from his apprehensions of the Venetian fleet ; when the fatigue of his journey, and the mortification of failing in his attempt to preserve his generous patron from the impending danger, threw him into a fever, which terminated in death on the 14th of September 1321. He died, however, in the palace of his friend ; and the affectionate Guido paid the most tender regard to his memory. This munificent patron (says Boccaccio) commanded the body to be adorned with poetical ornaments, and, after being carried on a bier through the streets of Ravenna by the most illustrious citizens, to be deposited in a marble coffin. He pronounced himself the funeral oration, and expressed his design of erecting a splendid monument in honour of the deceased : a design which his subsequent misfortunes rendered him unable to accomplish. At his request, many epitaphs were written on the poet : the best of them (says Boccaccio) by Giovanni del Virgilio of Bologna, a famous author of that time, and the intimate friend of Dante. Boccaccio then cites a few Latin verses, not worth transcribing, six of which are quoted by Bayle as the composition of Dante himself, on the authority of Paul Jovius. In 1483 Bernardo Bembo, the father of the celebrated cardinal, raised a handsome monument over the neglected ashes of the poet, with the following inscription :

*Exigua tumuli Danthes hic sorte jacebas
Squalenti nulli cognita pene situ ;
At nunc marmoreo subnixus conderis arcu,
Omnibus et cultu splendidiore nites ;
Nimirum Bembo, Musis incensus Etruscis,
Hoc tibi, quem in primis hæc coluerat, dedit.*

Before this period the Florentines had vainly endeavoured to obtain the bones of their great poet from the city of Ravenna. In the age of Leo X. they made a second attempt, by a solemn application to the pope for that purpose ; and the great Michael Angelo, an enthusiastic admirer of Dante, very liberally offered to execute a magnificent monument to the poet. The hopes of the Florentines were again unsuccessful. The particulars of their singular petition may be found in the notes of Codivi's Life of Michael Angelo.

At what time, and in what place, he executed the great and singular work which has rendered him immortal, his numerous commentators seem unable to determine. Boccaccio asserts, that he began it in his 35th year, and had finished seven cantos of his *Inferno* before his exile ; that in the plunder of his house, on that event, the beginning of his poem was fortunately preserved, but remained for some time neglected, till its merit being accidentally discovered by an intelligent poet named Dino, it was sent to the marquis Marcello Malaspina, an Italian nobleman, by whom Dante was then protected. The marquis restored these lost papers to the poet, and intreated him to proceed in a work which opened in so promising a manner. To this incident we are probably indebted for the poem of Dante, which he must have continued under all the disadvantages of an unfortunate and agitated life. It does not appear at what time he completed it ; perhaps before he quitted Verona, as he dedicated the Paradise to his Veronese patron. The critics have variously accounted for his having called his poem *Comedia*. He gave it the title (said one of his sons), be-
L 2 cause

Dante,
Dantzic.

cause it opens with distress and closes with felicity. The very high estimation in which this production was held by his country, appears from a singular institution. The republic of Florence, in the year 1373, assigned a public stipend to a person appointed to read lectures on the poem of Dante: Boccaccio was the first person engaged in this office; but his death happening in two years after his appointment, his comment extended only to the seventeen first cantos of the *Inferno*. The critical dissertations that have been written on Dante are almost as numerous as those to which Homer has given birth; the Italian, like the Grecian bard, has been the subject of the highest panegyric, and of the grossest invective. Voltaire has spoken of him with that precipitate vivacity, which so frequently led that lively Frenchman to insult the reputation of the noblest writers. In one of his entertaining letters, he says to an Italian abbé, *Je fais grand cas du courage, avec lequel vous avez osé dire que Dante étoit un fou, et son ouvrage un monstre.—Le Dante pourra entrer dans les bibliothèques des curieux, mais il ne sera jamais lu.* But more temperate and candid critics have not been wanting to display the merits of this original poet. Mr Warton has introduced into his last volume on English poetry, a judicious and spirited summary of Dante's performance.

DANTE, *John Baptist*, a native of Perugia, an excellent mathematician, called the *new Dædalus*, for the wings he made himself, and with which he flew several times over the lake Thrasymenus. He fell in one of his enterprises, the iron work with which he managed one of his wings having failed; by which accident he broke his thigh: but it was set by the surgeons, and he was afterwards called to Venice to profess mathematics.

DANTZIC, the capital of Polish Prussia, situated on a branch of the Vistula, about four miles above where it falls into the Baltic; in E. Long. 18. 36. N. Lat. 54. 20. This city is famous in history on many accounts, particularly that of its being formerly at the head of the Hanseatic association, commonly called the *Hanse-towns*. It is large, beautiful, populous, and rich; its houses generally are five stories high; and many of its streets are planted with chestnut-trees. One of the suburbs is called *Scotland*; and the Scots have great privileges, in consequence of their gallant defence of the town, under one of the family of Douglas, when it was besieged by the Poles. It is said there are upwards of 30,000 pedlars of that nation in Poland who travel on foot, and some with three, four, or five horses. In King Charles II.'s time they were about 53,000: in that reign Sir John Denham and Mr Killigrew were sent to take the number of them, and to tax them by the poll, with the king of Poland's license; which having obtained, they brought home 10,000*l.* sterling, besides their charges in the journey. Dantzic has a fine harbour; and is still a most eminent commercial city, although it seems to be somewhat past its meridian glory, which was probably about the time that the president de Thou wrote his much esteemed *Historia sui Temporis*, wherein, under the year 1607, he so highly celebrates its commerce and grandeur. It is a republic, claiming a small adjacent territory about 40 miles round it, which was under the protection of the king and the republic of

Poland. Its magistracy, and the majority of its inhabitants, are Lutherans; although the Romanists and Calvinists be equally tolerated in it. It has 26 parishes, with many convents and hospitals. The inhabitants have been computed to amount to 200,000; but later computations fall very considerably short of it, as appears by its annual bill of mortality, exhibited by Dr Busching, who tells us, that in the year 1752, there died but 1846 persons. Its own shipping is numerous; but the foreign ships constantly resorting to it are more so, whereof 1014 arrived there in the year 1752; in which year also 1288 Polish vessels came down the Vistula, chiefly laden with corn for its matchless granaries; from whence that grain is distributed to many foreign nations, Poland being justly deemed the greatest magazine of corn in all Europe, and Dantzic the greatest port for distributing it everywhere: besides which, Dantzic exports great quantities of naval stores, and a vast variety of other articles. Dr Busching affirms, that it appears from ancient records, as early as the year 997, that Dantzic was a large commercial city, and not a village or inconsiderable town, as some pretend. The inhabitants of Dantzic have often changed their masters, and have sometimes been under the protection of the English and Dutch; but generally have shown a great predilection for the kingdom and republic of Poland, as being less likely to rival them in their trade, or abridge them of their immunities, which reach even to the privilege of coining money. Though strongly fortified, and possessed of 150 large brass cannon, it could not, from its situation, stand a regular siege, being surrounded with eminences. In 1734, the inhabitants discovered a remarkable attachment and fidelity towards Stanislaus king of Poland, not only when his enemies the Russians were at their gates, but even in possession of the city. This city was exempted by the late king of Prussia from those claims which he made on the neighbouring countries; notwithstanding which, his Prussian majesty soon after thought proper to seize on the territories belonging to Dantzic, under pretence of their having been formerly part of Polish Prussia. He then proceeded to possess himself of the port-duties belonging to that city, and erected a customhouse in the harbour, where he laid arbitrary and insupportable duties upon goods exported or imported. To complete the system of oppression, customhouses were erected at the very gates of Dantzic, so that no persons could go in or out of the town without being searched in the strictest manner. Such is the treatment which the city of Dantzic has received from the king of Prussia, though few cities have ever existed which have been comprehended in so many general and particular treaties, and whose rights and liberties have been so frequently secured, and guaranteed by so many great powers, and by such a long and regular succession of public acts, as that of Dantzic has been. In the year 1784, it was blockaded by his troops on various pretences; but by the interposition of the empress of Russia and of the king of Poland, they were withdrawn: and a compromise having taken place, the city was restored to its former immunities. Nevertheless, its trade has since been rather upon the decline, the merchants choosing to settle where their property may be more secure.

DANUBE,

Danube,
Daphne.

DANUBE, the largest and most considerable river in Europe, rising in the Black Forest, near Zunberg; and running north-east through Swabia, by Ulm, the capital of that country; then running east through Bavaria and Austria, passes by Ratisbon, Passau, Ens, and Vienna. It then enters Hungary, and runs south-east from Presburg to Buda, and so on to Belgrade; after which it divides Bulgaria from Walachia and Moldavia, discharging itself by several channels into the Black sea, in the province of Bessarabia. Towards the mouth, it was called the *Ister* by the ancients; and it is now said, that four of the mouths are choked up with sand, and that there are only two remaining. It begins to be navigable for boats at Ulm, and receives several large rivers as it passes along. It is so deep between Buda and Belgrade, that the Turks and Christians have had men of war upon it; and yet it is not navigable to the Black sea, on account of the cataracts. The Danube was generally supposed to be the northern boundary of the Roman empire in Europe. It was worshipped as a deity by the Scythians.

DAPHNE, a daughter of the river Peneus by the goddess Terra, of whom Apollo became enamoured. This passion had been raised by Cupid; with whom Apollo, proud of his late conquest of the serpent Python, had disputed the power of his darts. Daphne heard with horror the addresses of the god, and endeavoured to remove herself from his importunities by flight. Apollo pursued her, and Daphne, fearful of being caught, intreated the assistance of the gods, who changed her into a laurel. Apollo crowned his head with the leaves of the laurel, and for ever ordered that that tree should be sacred to his divinity. Some say that Daphne was admired by Leucippus, son of Enomachus king of Pisa, who to be in her company disguised his sex, and attended her in the woods in the habit of a huntress. Leucippus gained Daphne's esteem and love; but Apollo, who was his powerful rival, discovered his sex, and Leucippus was killed by the companions of Diana. Daphne was also the name of a daughter of Tiresias, priests in the temple of Delphi. She was consecrated to the service of Apollo by the Epigoni, or according to others by the goddess Tellus. She was called *Sibyl*, on account of the wildness of her looks and expressions when she delivered oracles. Her oracles were generally in verse; and Homer, according to some accounts, has introduced much of her poetry in his compositions.

DAPHNE, in *Ancient Geography*, a small village near to, or in the suburbs of, Antiochia of Seleucus in Syria; with a large grove, well watered with springs: In the middle of the grove stood the temple of Apollo and Diana. Its extent was 80 stadia or 10 miles; the distance from the city five miles: A place pleasant and agreeable, from the plenty of water and the temperature of the air, and its soft-breathing breezes. The grove was of bay-trees, intermixed with cypress: which last multiplied so fast, as to occupy the whole of it. Pompey gave some land for enlarging the grove. Antiochus Epiphanes built a very large temple of Daphneus Apollo. The place at length became so infamous, that people of modesty and character avoided resorting thither; so that *Daphnici mores* became proverbial.

DAPHNE, in *Ancient Geography*, a small district on the lake Samachonitis, in the Higher Galilee, very pleasant, and plentifully watered with springs, which feed the Less Jordan; whence its name seems to arise, probably in imitation of that near Antioch of Syria on the river Orontes.

DAPHNE, *Spurge-laurel*; a genus of plants, belonging to the octandria class; and in the natural method ranking under the 31st order, *Vepreculæ*. See *BOTANY Index*.

DAPHNEPHORIA, a festival in honour of Apollo, celebrated every ninth year by the Bœotians. It was then usual to adorn an olive bough with garlands of laurel and other flowers, and place on the top a brazen globe, on which were suspended smaller ones. In the middle was placed a number of crowns, and a globe of inferior size, and the bottom was adorned with a saffron-coloured garment. The globe on the top represented the sun or Apollo. That in the middle was an emblem of the moon, and the other of the stars. The crowns, which were 65 in number, represented the sun's annual revolution. This bough was carried in solemn procession by a beautiful youth of an illustrious family, and whose parents were both living. The youth was dressed in rich garments which reached to the ground, his hair hung loose and dishevelled, his head was covered with a golden crown, and he wore on his feet shoes called *Iphicratide*, from Iphicrates an Athenian, who first invented them. He was called *Δαφνηφορος*, *laurel-bearer*; and at the time he executed the office of priest of Apollo. He was preceded by one of his nearest relations, bearing a rod adorned with garlands, and behind him followed a train of virgins with branches in their hands. In this order the procession advanced as far as the temple of Apollo, surnamed Ismenius, where supplicatory hymns were sung to the god. This festival owes its origin to the following circumstance.—When an oracle advised the Ætolians, who inhabited Arne and the adjacent country, to abandon their ancient possessions, and go in quest of a settlement, they invaded the Theban territories, which at that time were pillaged by an army of Pelasgians. As the celebration of Apollo's festival was near, both nations, who religiously observed it, laid aside all hostilities, and according to custom cut down laurel boughs from Mount Helicon, and in the neighbourhood of the river Melas, and walked in procession in honour of the divinity. The day that this solemnity was observed, Polematas the general of the Bœotian army saw a youth in a dream, that presented him with a complete suit of armour, and commanded the Bœotians to offer solemn prayers to Apollo, and walk in procession with laurel boughs in their hands every ninth year. Three days after this dream, the Bœotian general made a sally, and cut off the greatest part of the besiegers, who were compelled by this blow to relinquish their enterprise. Polematas immediately instituted a novennial festival to the god, who seemed to be the patron of the Bœotians.

DAPIFER, the dignity or office of grand master of a prince's household. This title was given by the emperor of Constantinople to the czar of Russia as a testimony of favour. In France the like officer was instituted by Charlemagne, under the title of *dapiferat*; and the dignity of dapifer is still subsisting in Germany, the

Daphne
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Dapifer.

Dapple-bay the elector of Bavaria assuming the title of *arch-dapifer of the empire*, whose office is, at the coronation of the emperor, to carry the first dish of meat to table on horseback.

Dardanus.

DAPPLE-BAY, in the manege: When bay horses have marks of a dark bay, they are called *dapple-bays*.

DAPPLE-Blacks: When a black horse has got spots or marks more black or shining than the rest of his skin, he is called a *dapple-black*.

DARANTASIA, in *Ancient Geography*, called *Forum Claudii* by the Romans; a town of the Centrones in Gallia Narbonensis, situated between Lemincum and Augusta Prætoria. Now *Moustiers*, and *Moustiers en Tarantaise*, in Savoy.

DARAPTI, among logicians, one of the modes of syllogisms of the third figure, whose premises are universal affirmatives, and the conclusion is a particular affirmative: thus,

- DAR- Every body is divisible;
 AP- Every body is a substance;
 TI. Therefore, some substance is divisible.

DARDA, a town and fort of Lower Hungary, built by the Turks in 1686, and taken by the Imperialists the next year, in whose hands it remains. It is seated on the river Drave, 10 miles from its confluence with the Danube, and at the end of the bridge of Esfeck. E. Long. 19. 10. N. Lat. 45. 45.

DARDANELLES, two ancient and strong castles of Turkey, one of which is in Romania, and the other in Natolia, on each side the channel formerly called the *Hellepont*. This keeps up a communication with the Archipelago, and the Propontis or sea of Marmora. The mouth of the channel is four miles and a half over; and the castles were built in 1659, to secure the Turkish fleet from the insults of the Venetians. The ships that come from Constantinople are searched at the castle on the side of Natolia, to see what they have on board.

DARDANIA, in *Ancient Geography*, a district of Mœsia Superior to the south. Now the south part of Servia, towards the confines of Macedonia and Illyricum.—*Dardani* was the name of the people, who seem to have been descendants of the *Dardani* of Troas. Also a small district of Troas, along the Hellepont, (Mela, Virgil); and the ancient name of *Samothracia*, (Pliny), from *Dardanus*, who removed thither.

DARDANUM PROMONTORIUM, (Pliny); *Dardanis*, (Strabo); a promontory of Troas, near Abydos, running out into the Hellepont; with a cognominal town at it, called also *Dardanus*, and *Dardanium*; all which gave name to the *Dardanelles*.

DARDANUS, a son of Jupiter and Electra, who, after the death of his brother Jason, left Samothrace his country, and passed into Asia Minor, where he married Batis, the daughter of Teucer king of Teucra. After the death of his father-in-law he ascended the throne, and reigned 62 years. He built the city of Dardania, and was reckoned the founder of the kingdom of Troy. He was succeeded by Erichthonius. According to some, Corybas, his nephew, accompanied him to Teucra, where he introduced the worship of Cybele. Dardanus taught his subjects to worship Minerva, and he gave them two statues of the goddess,

one of which is well known by the name of *Palladium*. According to Virgil, Dardanus was an Italian by origin.

Dare
Darfoor.

DARE, the same with dace. See DACE, ICHTHYOLOGY Index.

DARES, a Phrygian, who lived during the Trojan war, in which he was engaged, and of which he wrote the history in Greek. This history was extant in the age of Ælian; the Latin translation, now extant, is universally allowed to be spurious, though it is attributed by some to Cornelius Nepos. This translation first made its appearance A. D. 1477, at Milan. Homer speaks of him, Iliad. v. 10. and 27.

DARFOOR, or DARFUR, a country or kingdom of Africa, which has been visited by no other European traveller excepting Mr Browne. This country is of considerable extent, and in many places covered with wood. During the dry season, the appearance of the open country is sterile and barren, but when the rains commence, the dry sandy soil is soon changed into green fields covered with luxuriant vegetation. Considerable quantities of maize, sesame, beans, and legumens, are raised by the inhabitants for food. There are several species of trees in Darfoor; but the tamarind alone is valuable for its fruit, or rises to a considerable size. The date, which is diminutive, does not appear to be indigenous. Domestic animals are, the camel, the sheep, the goat, and horned cattle, which are numerous. Of the milk of the cow, some of the inhabitants make a kind of cheese, but the process is not generally known. The camel is of an inferior quality; and the horse and the ass are imported from Egypt and Nubia. Their wild animals are, the lion, the leopard, the hyæna, the wolf, and the wild buffalo. The *termites*, or white ant, abounds; and the cochineal insect is frequently met with, though it has never been applied to any useful purpose in Darfoor. The rocks are chiefly composed of gray granite, but in a few places alabaster and marble are found. Nitre is produced in considerable quantities, fossil salt is found in one district, and sulphur is collected by the pastoral Arabs on the south and west.

The principal towns in Darfoor, are Cobbe, the chief residence of the merchants, situated in N. Lat. 14. 11. Long. E. G. 28. 8. It is above two miles in length, but extremely narrow, containing numerous trees and vacant spaces within its boundaries. Sweini, which commands the northern road to Darfoor, is situated above two journeys to the north of Cobbe. Kourma, a small town, lies 12 or 13 miles to the south west of Cobbe, and Cubcubia, two and a half journeys to the west. Cubcubia commands the western roads, and has a market twice in the week. Cours lies 14 or 15 miles to the north-west of Cobbe; Ril, about 60 miles to the south east of Cobbe, is situated in a fertile plain, commands the southern and eastern roads, and was formerly the residence of the kings of Darfoor. Gidid, Gelle, and Shoba, are the only other remarkable towns. The villages are numerous, but their population seldom exceeds a few hundred inhabitants. The population of Darfoor is estimated by Browne at 200,000 persons. It consists of the native tribes of Fur, of a deep black complexion, crisped woolly hair, and features different from those of the negroes; Arabs of the tribes of Mahmid, Mahrea, Beni Fefara, Beni Gerar, &c. some of whom had settled

Darfoor. tled in the country, while others wander on the frontiers, and are very numerous; and a number of emigrants, from the neighbouring states, particularly Dongola, Mahas, Senaar, and Cordofan. Besides these, Darfoor comprehends the inhabitants of various subordinate districts, that are sometimes dependant on Darfoor, and sometimes on the surrounding nations: as Dar Rugda, which is generally subject to Bergoo; Dar Berti, Bego, or Dageou, between Darfoor and Bergoo, the power of which formerly predominated over the Furian tribes; and Zeghawa, formerly an independent kingdom, that was accustomed to raise a thousand cavalry in war, the inhabitants of which are different in their features from the Negroes.

The dialect of Arabic which is vernacular in Darfoor, differs essentially from that spoken in Egypt. The native Furians are more cheerful in their dispositions than the Egyptians; but resemble the Moorish tribes in the violence of their passions, their disregard to truth, their inattention to cleanliness, and their inaccurate ideas of property. As the practice of polygamy is established, their intercourse with the other sex is regulated by no attention to delicacy or decency; and the precepts of Islamism are often infringed, by the relations of brother and sister being exchanged for a closer connection. The sex are, however, subjected to less restraint than in many Mahometan countries. The women appear in public unveiled, make bargains in the markets, and converse with the other sex, without offending their husbands or relations. The most severe labours of the field, and the meanest domestic offices, are performed by the women, who are often seen walking after their husbands, under the pressure of a heaven burden, while these ride before them on their asses, without incumbrance and without concern.

Their houses are built of clay, commonly by the hands of their women, and are covered with a flattish roof of thin boards, coated with clay. Salt is the general medium of exchange in Darfoor, but, in some places, small tin rings of arbitrary value, are employed. A caravan passes from Darfoor to Egypt, to traffic in slaves, ivory, gum, camels, &c.; but this commercial intercourse is not regular, and is frequently interrupted. The Dongolese and Nubian settlers in Darfoor, who had been accustomed to the Egyptian trade, originally opened the route; but merchants are frequently interrupted by the Cubba-besh and Bedeiat Arabs; the last of whom are not supposed to be of Arabic origin. The king, or, as he is denominated, the sultan of Darfoor, reigns with absolute authority, and confers the same arbitrary power on his delegates in the provinces. Though the precepts of the Koran are the ostensible rules of decision, in litigation, yet the verdict depends on the will of the judge; and, as none but ecclesiastics dare express their sentiments of his conduct, their opinion is the only check upon his caprice. These judges, however, display considerable ingenuity in developing the most intricate cases that occur in a nation versed in the arts of deceit.

The sultan's revenues consist in the taxes upon merchandise exported and imported; the annual tribute of live stock from the Arabs, and of corn from the towns and villages, with the amount of fines, forfeitures, and presents. The armies of Darfoor are not numerous, as 4000 troops are reckoned a formidable

number; neither are these troops remarkable for skill, courage, or perseverance, though they endure hunger, thirst, and fatigue, with great resolution, and use no other camp equipage, but a light mat adapted to the size of the body. The troops of Darfoor, not actually engaged in war, are reviewed at an annual military festival, termed, *The leathering of the kettledrum*, when presents are offered to the sovereign by all the principal people of the country, and various superstitious ceremonies are performed, among which are the sacrifice of a young boy and a girl.

Various superstitious opinions are blended with the Mahometanism of the Furian tribes. The mountaineers sacrifice to the deity of the mountains in order to procure rain. Mahometanism began to prevail in Darfoor, in the reign of Solyman, of the Dageou race, who is supposed by Browne to have lived at some period between 130 and 150 years ago. The Dageou race are reported to have been originally expelled from the vicinity of Tunis, and to have resigned the sceptre to the race of Fut, after being exhausted by intestine dissensions. At the inauguration of every king, they are said to have kindled a fire, which was preserved burning till his death. At the accession of a sultan, the present Furians spread before him various carpets, on which their deceased monarchs used to sit, and from that which obtains the preference, deduce an omen of his future character, which they suppose will resemble its former possessor.

DARIC, in antiquity, a famous piece of gold, first coined by Darius the Mede about 538 years before Christ, probably during his stay at Babylon, out of the vast quantity of gold which had been accumulated in the treasury. From thence it was dispersed over the east, and also into Greece; so that the Persian daric, which was also called *stater*, was the gold coin best known in Athens in ancient times. According to Dr Bernard, it weighed two grains more than one of our guineas; but as it was very fine, and contained little alloy, it may be reckoned worth about 25s. of our money. Plutarch informs us, that the darics were stamped on one side with an archer clothed in a long robe, and crowned with a spiked crown, holding a bow in his left hand and an arrow in his right; and on the other side with the effigies of Darius. All the other pieces of gold of the same weight and value that were coined of the succeeding kings, both of the Persian and Macedonian race, were called *darics*, from Darius in whose reign this coin commenced. Of these there were whole darics and half darics; and they are called in those parts of Scripture written after the Babylonish captivity *adarkonim*; and by the Talmudists *darkonoth*. Greaves says that the daric is still found in Persia; but it is certainly very scarce, and perhaps of doubtful antiquity.

DARIEN, or the Isthmus of Panama, is a province between South and North America, being a narrow isthmus or neck of land, which joins them together. It is bounded on the north by the North sea, on the south by the South sea, on the east by the gulf or river of Darien, and on the west by another part of the South sea and the province of Veragua. It lies in the form of a bow, or crescent, about the great bay of Panama in the South sea; and is 300 miles in length, and 60 in breadth. This province is not

Darfoor
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Darien.

Darien.

the richest, but is of the greatest importance to Spain, and has been the scene of more actions than any other in America. The wealth of Peru is brought hither, and from hence exported to Europe. This has induced many enterprising people to make attempts on Panama, Porto-Bello, and other towns of this province, in hopes of obtaining a rich booty.

The Scotch got possession of part of this province in 1699, and attempted to form an establishment, which would have proved one of the most useful and important that ever was projected. Of the rise, progress, and catastrophe, of this well-imagined, but ill-fated, undertaking, Sir John Dalrymple, in the 2d volume of his *Memoirs of Great Britain and Ireland*, has given a very interesting account, authenticated in every particular by unquestionable documents. The projector and leader of the Darien expedition was a clergyman of the name of *Paterfon*; who having a violent propensity to see foreign countries, he made his profession the instrument of indulging it, by going to the new western world, under pretence of converting the Indians to the religion of the old. In his courses there, he became acquainted with Captain Dampier and Mr Wafer, who afterwards published, the one his *Voyages*, and the other his *Travels*, in the region where the separation is narrowest between the Atlantic and the South seas; and both of whom, particularly the first, appear by their books to have been men of considerable observation. But he got much more knowledge from men who could neither write nor read, by cultivating the acquaintance of some of the old bucaniers, who, after surviving their glories and their crimes, still, in the extremity of age and misfortune, recounted with transport the ease with which they had passed and repassed from the one sea to the other, sometimes in hundreds together, and driving strings of mules before them loaded with the plunder of friends and of foes. Paterfon having examined the places, satisfied himself, that on the isthmus of Darien there was a tract of country running across from the Atlantic to the South sea, which the Spaniards had never possessed, and inhabited by a people continually at war with them; that along the coast, on the Atlantic side, there lay a string of islands called the *Sambaloes*, uninhabited, and full of natural strength and forests, from which last circumstance one of them was called the *island of the Pines*; that the seas there were filled with turtle and the manatee or sea-cow; that mid-way between Porto-Bello and Carthagena, but near 50 leagues distant from either, at a place called *Asta*, in the mouth of the Darien, there was a natural harbour, capable of receiving the greatest fleets, and defended from storms by other islands which covered the mouth of it, and from enemies by a promontory which commanded the passage, and by hidden rocks in the passage itself; that on the other side of the isthmus, and in the same tract of country, there were natural harbours, equally capacious and well defended; that the two seas were connected by a ridge of hills, which, by their height, created a temperate climate in the midst of the most sultry latitudes, and were sheltered by forests, yet not rendered damp by them, because the trees grew at a distance from each other, having very little underwood; that, contrary to the barren nature of hilly countries, the soil was of a black mould two or three

feet deep, and producing spontaneously the fine tropical fruits and plants, and roots and herbs; that roads could be made with ease along the ridge, by which mules, and even carriages, might pass from the one sea to the other in the space of a day; and consequently this passage seemed to be pointed out by the finger of nature, as a common centre, to connect together the trade and intercourse of the universe.

Darien.

Paterfon knew that ships which stretch in a straight line from one point to another, and with one wind, run less risks, and require fewer hands, than ships which pass through many latitudes, turn with many coasts, and require many winds; in evidence of which, vessels of seven or eight hundred tons burden are often to be found in the South seas, navigated by no more than eight or ten hands, because these hands have little else to do than set their sails when they begin their voyage, and to take them in when they end it; that as soon as ships from Britain got so far south as to reach the trade-wind, which seldom varies, that wind would carry them to Darien, and the same wind would carry ships from the bay of Panama, on the opposite side of the isthmus, to the East Indies; that as soon as ships coming from the East Indies to the bay of Panama got so far north as the latitude of 40°, to reach the westerly winds, which, about that latitude, blow almost as regularly from the west as the trade winds do from the east, these winds would carry them, in the track of the Spanish Acapulco ships, to the coast of Mexico; from whence the land-wind, which blows for ever from the north to the south, would carry them along the coast of Mexico into the bay of Panama. So that in going from Britain, ships would encounter no uncertain winds, except during their passage south into the latitude of the trade wind; in coming from India to the bay of Panama, no uncertain winds, except in their passage north to the latitude of the westerly winds; and in going from the other side of the isthmus to the east, no uncertain wind whatsoever. —Gold was seen by Paterfon in some places of the isthmus; and hence an island on the Atlantic side was called the *Gold island*, and a river on the side to the South sea was called the *Golden river*; but these were objects which he regarded not at that time, because far greater were in his eye; the removing of distances, the drawing nations nearer to each other, the preservation of the valuable lives of seamen, and the saving in freight, so important to merchants, and in time so important to them, and to an animal whose life is of so short duration as that of man.

By this obscure Scotsman, a project was formed to settle, on this neglected spot, a great and powerful colony; not as other colonies have for the most part been settled, by chance, and unprotected by the country from whence they went; but by system, upon foresight, and to receive the ample protection of those governments to whom he was to offer his project. And certainly no greater idea has been formed since the time of Columbus.

Paterfon's original intention was to offer his project to England, as the country which had most interest in it, not only from the benefit common to all nations, of shortening the length of voyages to the East Indies, but by the effect which it would have had to connect the interests of her European, West Indian, American,

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Darien.

African, and East Indian trade. But Paterfon having few acquaintance, and no protection in London, thought of drawing the public eye upon him, and ingratiating himself with monied men, and with great men, by assisting them to model a project, which was at that time in embryo, for erecting the Bank of England. But that happened to him which has happened to many in his situation: the persons to whom he applied made use of his ideas, took the honour of them to themselves, were civil to him for a while, and neglected him afterwards. He therefore communicated his project of a colony only to a few persons in London, and these few discouraged him.

He next made offer of his project to the Dutch, the Hamburgers, and the elector of Brandenburg; because, by means of the passage of the Rhine and Elbe through their states, he thought, that the great additional quantities of East Indian and American goods, which his colony would bring into Europe, would be distributed through Germany. The Dutch and Hamburg merchants, who had most interest in the subject of his visit, heard him with indifference: The elector, who had very little interest in it, received him with honour and kindness. But court arts and false reports lost him even that prince's favour.

Paterfon, on his return to London, formed a friendship with Mr Fletcher of Salton, whose mind was inflamed with the love of public good, and all of whose ideas to procure it had a sublimity in them. Fletcher brought Paterfon down to Scotland with him, presented him to the marquis of Tweedale, then minister for Scotland; and then, with that power, which a vehement spirit always possesses over a diffident one, persuaded the marquis, by arguments of public good and the honour which would redound to his administration, to adopt the project. Lord Stair and Mr Johnston, the two secretaries of state, patronised those abilities in Paterfon which they possessed in themselves: and the lord advocate, Sir James Stuart, the same man who had adjusted the prince of Orange's declaration at the Revolution, whose son was married to a niece of Lord Stair, went naturally along with his connexions. These persons, in June 1695, procured a statute from parliament, and afterwards a charter from the crown in terms of it, for creating a trading company to Africa and the new world, with power to plant colonies and build forts, with consent of the inhabitants, in places not possessed by other European nations.

Paterfon, now finding the ground firm under him, and that he was supported by almost all the power and talents of his country, the character of Fletcher, and the sanction of an act of parliament and royal charter, threw his project boldly upon the public, and opened a subscription for a company. The frenzy of the Scots nation to sign the solemn league and covenant, never exceeded the rapidity with which they ran to subscribe to the Darien company. The nobility, the gentry, the merchants, the people, the royal burghs without the exception of one, most of the other public bodies, subscribed. Young women threw their little fortunes into the stock; widows sold their jointures, to get the command of money for the same purpose. Almost in an instant 400,000*l.* were subscribed in Scotland, although it be now known, that there was not at that time above

Darien.

800,000*l.* of cash in the kingdom. The famous Mr Law, then a youth, afterwards confessed, that the facility with which he saw the passion of speculation communicate itself from all to all, satisfied him of the possibility of producing the same effect from the same cause, but upon a larger scale, when the duke of Orleans, in the year of the Mississippi, engaged him against his will to turn his bank into a bubble. Paterfon's project, which had been received by strangers with fears when opened to them in private, filled them with hopes when it came to them upon the wings of public fame: For Colonel Erskine, son to Lord Cardross, and Mr Hal-dane of Gleneagles, the one a generous branch of a generous stem, and the other a country gentleman of fortune and character, having been deputed to receive subscriptions in England and on the continent, the English subscribed 300,000*l.* and the Dutch and Hamburgers 200,000*l.* more.

In the mean time the jealousy of trade (continues our author), which has done more mischief to the trade of England than all other causes put together, created an alarm in England; and the houses of lords and commons, without previous inquiry or reflection, on the 13th of December 1695, concurred in a joint address to the king, against the establishment of the Darien company as detrimental to the interest of the East India Company. Soon after, the commons impeached some of their own countrymen for being instrumental in erecting the company; and also some of the Scots nation, one of whom was a peer, Lord Belhaven; that is to say, they arraigned the subjects of another country, for making use of the laws of their own. Among 600 legislators, not one had the happy ray of genius to propose a committee of both parliaments, to inquire into the principles and consequences of the establishment; and if these should, upon inquiry, be found, that the benefit of it should be communicated, by a participation of rights, to both nations. The king's answer was "That he had been ill advised in Scotland." He soon after changed his Scottish ministers, and sent orders to his resident at Hamburg to present a memorial to the senate, in which he disowned the company, and warned them against all connexions with it. The senate sent the memorial to the assembly of merchants, who returned it with the following spirited answer: "We look upon it as a very strange thing, that the king of Britain should offer to hinder us, who are a free people, to trade with whom we please; but are amazed to think that he would hinder us from joining with his own subjects in Scotland, to whom he had lately given such large privileges, by so solemn an act of parliament." But merchants, though mighty prone to passion, are easily intimidated: The Dutch, Hamburg, and London merchants withdrew their subscriptions.

The Scots, not discouraged, were rather animated by this oppression; for they converted it into a proof of the envy of the English, and of their consciousness of the great advantages which were to flow to Scotland from the colony. The company proceeded to build six ships in Holland, from 36 to 60 guns, and they engaged 1200 men for the colony; among whom were younger sons of many of the noble and most ancient families of Scotland, and 60 officers who had been disbanded at the peace, who carried with them such of

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Darien.

their private men, generally raised on their own, or the estates of their relations, as they knew to be faithful and brave; and most of those were Highlanders. The Scots parliament, on the 5th August 1698, unanimously addressed the king to support the company. The lord president Sir Hugh Dalrymple, brother to Lord Stair, and head of the bench, and the lord advocate Sir James Stuart, head of the bar, jointly drew memorials to the king, able in point of argument, information, and arrangement; in which they defended the rights of the company upon the principles of constitutional and of public law. And neighbouring nations, with a mixture of surmise and respect, saw the poorest kingdom of Europe sending forth the most gallant and the most numerous colony that had ever gone from the old to the new world.

On the 26th day of July of the year 1698, the whole city of Edinburgh poured down upon Leith, to see the colony depart, amidst the tears and prayers and praises of relations and friends, and of their countrymen. Many seamen and soldiers, whose services had been refused, because more had offered themselves than were needed, were found hid in the ships, and, when ordered ashore, clung to the ropes and timbers, imploring to go without reward with their companions. Twelve hundred men sailed in five stout ships, and arrived at Darien in two months, with the loss of only 15 of their people. At that time it was in their power, most of whom were well born, and all of them hardily bred and inured to the fatigues and dangers of the late war, to have gone from the northmost part of Mexico to the southmost of Chili, and to have overturned the whole empire of Spain in the South seas: But modest, respecting their own and their country's character, and afraid of being accused that they had plunder, and not a settlement in view, they began with purchasing lands from the natives, and sending messages of amity to the Spanish governors within their reach: and then fixed their station at Acta, calling it *New St Andrew* from the name of the tutelary saint of Scotland, and the country itself *New Caledonia*. One of the sides of the harbour being formed by a long narrow neck of land which ran into the sea, they cut it across so as to join the ocean and the harbour. Within this defence they erected their fort, planting upon it 50 pieces of cannon. On the other side of the harbour there was a mountain a mile high, on which they placed a watch-house, which, in the rarefied air within the tropics, so favourable for vision, gave them an immense range of prospect to prevent all surprise. To this place, it was observed that the Highlanders often repaired, to enjoy a cool air, and to talk of their friends they had left behind in their hills; friends whose minds were as high as their mountains. The first public act of the colony was to publish a declaration of freedom of trade and religion to all nations. This luminous idea originated with Paterfon.

But the Dutch East India Company having pressed the king, in concurrence with his English subjects, to prevent the settlement at Darien, orders had been sent from England to the governors of the West Indian and American colonies, to issue proclamations against giving assistance, or even to hold correspondence with the colony; and these were more or less harshly expressed, according to the tempers of the different

governors. The Scots trusting to far different treatment, and to the supplies which they expected from those colonies, had not brought provisions enough with them; they fell into diseases from bad food and from want of food. But the more generous savages, by hunting and fishing for them, gave them that relief which fellow Britons refused. They lingered eight months, awaiting, but in vain, for assistance from Scotland; and almost all of them either died out or quitted the settlement. Paterfon who had been the first that entered the ship at Leith, was the last who went on board at Darien.

During the space of two years, while the establishment of his colony had been in agitation, Spain had made no complaint to England or Scotland against it. The Darien council even averred in their papers (which are in the advocates library), that the right of the company was debated before the king, in presence of the Spanish ambassador, before the colony left Scotland. But now, on the 3d of May 1698, the Spanish ambassador at London presented a memorial to the king, which complained of the settlement at Darien as an encroachment on the rights of his master.

The Scots, ignorant of the misfortunes of their colony, but provoked at this memorial, sent out another colony soon after of 1300 men, to support an establishment which was now no more. But this last expedition having been more hastily prepared than the first, was unlucky in its passage. One of the ships was lost at sea, many men died on ship-board, and the rest arrived at different times, broken in their health and dispirited, when they heard the fate of those who had gone before them.—Added to the misfortunes of the first colony, the second had a misfortune peculiar to itself: The general assembly of the church of Scotland sent out four ministers, with orders "to take charge of the souls of the colony, and to erect a presbytery, with a moderator, clerk, and record of proceedings; to appoint ruling elders, deacons, overseers of the manners of the people, and assistants in the exercise of church discipline and government, and to hold regular kirk-sessions." When they arrived, the officers and gentlemen were occupied in building houses for themselves with their own hands, because there was no help to be got from others; yet the four ministers complained grievously that the council did not order houses to be immediately built for their accommodation. They had not had the precaution to bring with them letters of recommendation from the directors at home to the council abroad. On these accounts, not meeting with all the attention they expected from the higher, they paid court to the inferior ranks of the colonists, and by that means threw divisions into the colony. They exhausted the spirits of the people, by requiring their attendance at sermon four or five hours at a stretch, relieving each other by preaching alternately, but allowing no relief to their hearers. The employment of one of the days set aside for religious exercise, which was a Wednesday, they divided into three parts, thanksgiving, humiliation, and supplication, in which three ministers followed each other. And as the service of the church of Scotland consists of a lecture with a comment, a sermon, two prayers, three psalms, and a blessing, the work of that day, upon an average of the length of the service of that age,

Darien. age, could not take up less than twelve hours: during which space of time the colony was collected, and kept close together in the guard-room, which was used as a church, in a tropical climate, and in a sickly season. They presented a paper to the council, and made it public, requiring them to set aside a day for a solemn fasting and humiliation, and containing their reasons for their requisition; in which, under pretence of enumerating the sins of the people, they poured abuse on their rulers. They damped the courage of the people, by continually presenting hell to them as the termination of life to most men, because most men are sinners. Carrying the presbyterian doctrine of predestination to extremes, they stopped all exertions, by showing that the consequence of them depended not on those by whom they were made. They converted the numberless accidents to which soldiers and seamen are exposed into immediate judgments of God against their sins. And having resolved to quit the settlement, they, in excuse for their doing so, wrote bitter letters to the general assembly against the characters of the colonists, and the advantages of the colony itself.

One of them, in a kind of history of the colony which he published, with a savage triumph exulted over the misfortunes of his countrymen in the following words;—They were such a rude company, that I believe Sodom never declared such impudence in sinning as they. An observant eye might see, that they were running the way they went; hell and judgment was to be seen upon them, and in them, before the time: Their cup was full: it could hold no more: They were ripe; they must be cut down with the sickle of the wrath of God.”

The last party that joined the second colony at Darien, after it had been three months settled, was Captain Campbell of Finab, with a company of the people of his own estate, whom he had commanded in Flanders, and whom he carried to Darien in his own ship. On their arrival at New St Andrew, they found intelligence had been lately received, that a Spanish force of 1600 men, which had been brought from the coast of the South Sea, lay encamped at Tubucantee, waiting there till a Spanish squadron of eleven ships which was expected should arrive, when they were jointly to attack the fort. The military command was offered to Captain Campbell, in complement to his reputation and to his birth, who was descended from the families of Breadalbane and Athole. In order to prevent a joint attack, he resolved to attack first; and therefore on the second day after his arrival, he marched with 200 men to Tubucantee, before his arrival was known to the enemy, stormed the camp in the night-time, dissipated the Spanish force with much slaughter, and returned to the fort the fifth day: But he found the Spanish ships before the harbour, their troops landed, and almost all hope of help or provision cut off; yet he stood a siege near six weeks, till almost all the officers were dead, the enemy by their approaches had cut off his wells, and his balls were so far expended, that he was obliged to melt the pewter dishes of the garrison into balls. The garrison then capitulated, and obtained not only the common honours of war and security for the property of the company, but, as if they had been conquerors, exacted hostages for performance of the conditions. Captain Campbell alone desired to be

excepted from the capitulation, saying he was sure the Spaniards could not forgive him the mischief which he so lately had done them. The brave, by their courage, often escape that death which they seem to provoke: Captain Campbell made his escape in his vessel, and, stopping nowhere, arrived safely at New York and from thence to Scotland, where the company presented him with a gold medal, in which his virtue was commemorated, to inflame his family with the love of heroic actions. And the Lord Lyon King at Arms whose office it is in Scotland (and such offices should be everywhere) to confer badges of distinction according to the rules of heraldry upon honourable actions, gave him a Highlander and an Indian for supporters to his coat of arms.

A harder fate attended those whom Captain Campbell left at Darien. They were so weak in their health as not to be able to weigh up the anchors of the Rising Sun, one of their ships, which carried 60 guns: But the generous Spaniards assisted them. In going out of the harbour she ran aground: The prey was tempting, and to obtain it, the Spaniards had only to stand by and look on: but showed that mercy to the Scots in distress, which one of the countrymen of those Scots, General Elliot, returned to the posterity of the Spaniards at the end of the late conflagration at the siege of Gibraltar. The Darien ships being leaky and weakly manned, were obliged in their voyage to take shelter in different ports belonging to Spain and England. The Spaniards in the new world showed them kindness; the English governments showed them none; and in one place one of their ships was seized and detained. Of these only Captain Campbell's ship and another small one were saved: The Royal Sun was lost on the bar of Charlestown; and of the colony, not more than 30, saved from war, shipwreck, or disease, ever saw their country again.

Paterfon, who had stood the blow, could not stand the reflection of misfortune. He was seized with a lunacy in his passage home after the ruin of the first colony: But he recovered in his own country, where his spirit, still ardent and unbroken, presented a new plan to the company, founded on the idea of King William, that England should have the joint dominion of the settlement with Scotland.

He survived many years in Scotland, pitied, respected, but neglected. After the union of the two kingdoms, he claimed reparation of his losses from the equivalent-money given by England to the Darien Company, but got nothing: because a grant to him from a public fund would have been only an act of humanity, not a political job.

Thus ended the colony of Darien. Men look into the works of poets for subjects of satire; but they are more often to be found in the records of history. The application of the Dutch to King William against the Darien Company, affords the surest of all proofs, that it was the interest of the British islands to support it. England, by the imprudence of ruining that settlement, lost the opportunity of gaining and continuing to herself the greatest commercial empire that probably ever will be upon earth. Had she treated with Scotland, in the hour of the distress of the company, for a joint possession of the settlement, or adopted the union of the kingdoms, which the sovereign of both

Darien.

proposed to them, that possession could certainly have been obtained. Had she treated with Spain to relinquish an imaginary right, or at least to give a passage across the isthmus, upon receiving duties so high as to overbalance all the chance of loss by a contraband trade, she had probably obtained either the one or the other. Had she broke with Spain for the sake of gaining by force one of those favours, she would have lost far less than she afterwards did by carrying a war into that country for many years, to force a king upon the Spaniards against their will. Even a rupture with Spain for Darien, if it had proved successful, would have knit the two nations together by the most solid of ties, their mutual interest: for the English must then have depended upon Spain for the safety of their caravans by land, and the Spaniards upon England for the safety of their fleets by sea. Spain and England would have been bound together as Portugal and England have long been; and the Spanish treasures have failed, under the wings of English navies, from the Spanish main to Cadiz, in the same manner as the treasures of Portugal have failed under the same protection, sacred and untouched, from the Brazils to Lisbon.

It has been made a question, whether King William behaved with his ordinary sincerity and steadiness, in the assurances of favour which he gave more than once to the company during their distresses. The following anecdote makes it probable, that there was a struggle in his breast between the part which he was obliged to act to please his English and Dutch at the expence of his Scots subjects and his own feelings. A provision ship of the first colony, in which were 30 gentlemen passengers, and some of them of noble birth, having been shipwrecked at Carthage, the Spaniards, believing or pretending to believe that they were smugglers, cast them into a dungeon, and threatened them with death. The company deputed Lord Basil Hamilton from Scotland to implore King William's protection for the prisoners. The king at first refused to see him, because he had not appeared at court when he was last in London. But when this difficulty was removed by explanation, an expression fell from the king, which showed his sense of the generous conduct of another, although influenced by the English and Dutch East India Companies, he could not resolve to imitate it in his own. For Lord Basil's audience having been put off from time to time, but at last fixed to be in the council chamber after a council was over, the king, who had forgotten the appointment, was passing into another room, when Lord Basil placed himself in the passage, and said, "That he came commissioned by a great body of his majesty's subjects to lay their misfortunes at his feet; that he had a right to be heard, and would be heard." The king returned, listened with patience, gave instant orders to apply to Spain for redress; and then turning to those near him, said, "This young man is too bold, if any man can be too bold in his country's cause." I had this anecdote from the present earl of Selkirk, grandson to Lord Basil.

King William's desertion of a company erected upon the faith of his own charter, and the English oppressions of it, were the reasons why so many of the Scots, during four successive reigns, disliked the cause of the Revolution and of the Union. And that dislike,

joined to English discontents, brought upon both countries two rebellions, the expence of many millions of money, and (which is a far greater loss) the downfall of many of their noblest and most ancient families.—*Sir John Dalrymple's Memoirs of Great Britain and Ireland*, vol. ii.

DARII, in *Logic*, one of the modes of syllogism of the first figure, wherein the major proposition is an universal affirmative, and the minor and conclusion particular affirmatives: thus,

- DA- Every thing that is moved, is moved by another ;
 RI- Some body is moved ;
 I, Therefore, some body is moved by another.

DARIORIGUM, in *Ancient Geography*, a town of the Veneti in Gallia Celtica; called in the *Notitia Lugdunensis*, *Civitas Venetum*, after the manner of the lower age. Now *Vannes*, or *Vennes*, in Brittany. W. Long. 2. 37. Lat. 47. 40.

DARIUS, the name of several kings of Persia. See (*History of*) Persia.

DARKING, a market-town of Surrey in England, situated ten miles east of Guilford. The market is noted for corn and provisions, more especially for fowls. W. Long. 8. 20. N. Lat. 51. 18.

DARKNESS, the absence, privation, or want of natural light. "Darkness was upon the face of the deep." (*Gen. 1. 2.*); that is to say, the chaos was plunged in thick darkness, because hitherto the light was not created. One of the most terrible sorts of darkness was that which Moses brought upon Egypt as a plague to the inhabitants of it. The Septuagint, our translation of the Bible, and indeed most others, in explaining Moses's account of this darkness, render it, "a darkness which may be felt:" and the Vulgate has it "palpable darkness;" that is, a darkness consisting of black vapours and exhalations, so condensed that they might be perceived by the organs of feeling or seeing: but some commentators think that this is carrying the sense too far, since in such a medium as this mankind could not live an hour, much less for the space of three days, as the Egyptians are said to have done, during the time this darkness lasted; and therefore they imagine, that instead of a darkness that may be felt, the Hebrew phrase may signify a darkness wherein men went groping and feeling about for every thing they wanted. Le Clerc is of this opinion, and thinks that Philo, in his life of Moses, understood the passage in its right sense. "For in this darkness (says he), whoever were in bed, durst not get up; and such as their natural occasions compelled to get up, went feeling about by the walls, or any thing they could lay hold on, as if they had been blind." What it was that occasioned this darkness, whether it was in the air or in the eyes; whether it was a suspension of light from the sun in that country, or a black thick vapour which totally intercepted it, there is reason to think that the description which the author of the book of Wisdom (*xvi. 1, 2, 3, &c.*) gives us of their inward terrors and consternation, is not altogether conjectural, viz. that they were not only prisoners of darkness, and fettered with the bonds of a long night, but were horribly astonished likewise, and troubled with strange apparitions;

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Darkness.

Darkness
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partitions; for while over them was spread an heavy night, they were to themselves more grievous than darkness.

During the last three hours that our Saviour hanged upon the cross, a darkness covered the face of the earth, to the great terror and amazement of the people present at his execution. This extraordinary alteration in the face of nature (says Dr Macknight, in his *Harmony of the Gospels*), was peculiarly proper, whilst the Sun of righteousness was withdrawing his beams from the land of Israel and from the world; not only because it was a miraculous testimony borne by God himself to his innocence: but also because it was a fit emblem of its departure and its effects, at least till his light shone out anew with additional splendor in the ministry of his apostles. The darkness which now covered Judea and the neighbouring countries, beginning about noon, and continuing till Jesus expired, was not the effect of an ordinary eclipse of the sun: for that can never happen but at the new moon; whereas now it was full moon; not to mention, that the total darkness occasioned by eclipses of the sun never continues above twelve or fifteen minutes; wherefore it must have been produced by the divine power, in a manner we are not able to explain. Accordingly, Luke (xiii. 44, 45.), after relating that there was darkness over all the earth, adds, "and the sun was darkened;" which perhaps may imply, that the darkness of the sun did not occasion, but proceeded from, the darkness that was over all the land. Farther, the Christian writers, in their most ancient apologies to the Heathens, affirm, that as it was full moon at the passover when Christ was crucified, no such eclipse could happen by the course of nature. They observe also, that it was taken notice of as a prodigy by the Heathens themselves.

DARLINGTON, a town of the county of Durham, situated on a flat on the river Skerne, which falls into the Tees. It is a pretty large place, has several streets, and a spacious market-place. It gives title of earl to the Vane family. W. Long. 1. 15. N. Lat. 54. 30.

DARMSTADT, a town of Germany, in the circle of the Upper Rhine, and capital of the landgraviate of Hesse Darmstadt, with a handsome castle, where its own prince generally resides. It is seated on a river of the same name, in E. Long. 8. 40. N. Lat. 49. 50.

DARNEL. See LOLIUM, BOTANY *Index*.

DARNLEY, LORD. See (*History of*) SCOTLAND.

DARTFORD, a town of the county of Kent in England, seated on the river Darent, not far from its influx into the Thames. E. Long. 0. 16. N. Lat. 51. 25.

DARTMOUTH, a sea-port town in Devonshire, seated on the river Dart, near its fall into the sea. It is a well frequented and populous place, having a commodious harbour, and a considerable trade by sea. The town is large and well built; but the streets are narrow and bad, though all paved. It has the title of an earldom, and sends two members to parliament. W. Long. 4. 0. N. Lat. 50. 25.

DARTOS, in *Anatomy*, one of the coats which

form the scrotum. It is called the *dartos muscle*; but Dr Hunter says, that no such muscle can be found, and Albinus takes no notice of it in his tables. Darwin.

DARWIN, ERASMUS, a physician, a poet, and medical writer, was born at Elston, near Newark, in Nottinghamshire, on the 12th December 1731. He was the fourth son of Robert Darwin Esq. He received the early part of his education at Chesterfield school, under the reverend Mr Burrows, of whom he always spoke with great respect. He was entered, with two of his elder brothers, at St John's college, Cambridge; and, being intended for the practice of medicine, took the degree of M. B. in 1755, defending in his *thesis* an opinion, that the motion of the heart and arteries is produced by the immediate stimulus of the blood. During his residence in Cambridge, Mr Darwin was elected to one of Lord Exeter's scholarships, worth about 16l. per annum, which, from the meagreness of his father's income at that time, was esteemed a desirable acquisition. After having prepared himself for his future profession, by an attendance on the lectures of Dr Hunter, in London, and by a severe course of study at Edinburgh, he contemplated the metropolis as the proper theatre for his exertions. Deterred, however, by the want of an immediate introduction, and the improbability of obtaining immediate patronage, Dr Darwin thought it altogether more adviseable to settle in the country: the first place to which he went, in the capacity of a physician, was Nottingham, where he was entirely disappointed in his hopes of practice; he removed, therefore, to Litchfield, with letters of introduction to Lady Gresley and the reverend Mr Seward. Here his great capacity and various acquirements were most justly appreciated: he resided at Litchfield during a great number of years, in the enjoyment of a very extensive reputation, and a very profitable practice, the foundation of which is supposed to have been laid by his success in restoring to health a gentleman of fortune in the neighbourhood, whose recovery was despaired of by a numerous circle of friends and acquaintances.

In the year 1757 Dr Darwin married Miss Mary-Howard, daughter of Charles Howard, Esq; by his wife, Elizabeth Foley: she died in 1770. By this lady he had five children, two of whom died in their infancy: the eldest son, Charles, he educated to his own profession, but he died in the 20th year of his age, very soon after he had finished his course of studies at Edinburgh, where he gained considerable reputation, by endeavouring to furnish a criterion for distinguishing *pūs* from *mucus*.

Soon after the decease of his wife, Dr Darwin commenced his laborious work, the *Zoonomia*, which, however, he did not think proper to publish till about eight years since.

In 1778 he obtained a lease of a picturesque spot of ground, about a mile from Litchfield, where a cold bath was erected by Sir John Flayer, an eminent physician in the beginning of the last century: there is a grotto, surrounded by projecting rocks, from the edges of which trickles a perpetual shower of water. This place became his favourite retreat and amusement: here he formed a botanic garden, and began his poem on the "Loves of the Plants," the scenery of which,

Darwin. "as adapted to love-scenes, and being thence a proper residence for the modern goddess of Botany," is taken from these sequestered shades :—

And if with thee some hapless maid should stray,
 Disastrous Love companion of her way,
 Oh lead her timid steps to yonder glade,
 Whose arching cliffs depending alders shade ;
 There as meek Evening wakes her temperate breeze,
 And moonbeams glimmer through the trembling
 trees.

The rills, that guggle round, shall soothe her ear.
 The weeping rocks shall number tear for tear, &c. &c.

Canto 1, line 25.

In 1780, Dr Darwin was called to attend Colonel Sacheverel Pole, of Radbourne-hall, four miles from Derby ; and a few months after the decease of the colonel, he married his relict, Mrs Pole, with a jointure of 600*l.* per annum. The marriage of Dr Darwin occasioned his immediate removal from Litchfield to Radbourne, where he resided two years, till he got accommodated with a house in Derby. In this last situation he remained till about two months before his death, when he removed to Breadwall Priory, about three miles from Derby, which was a commodious and peaceful retirement for his old age.

During the last few years, Dr Darwin was much subject to inflammation in his breast and lungs ; and had a very serious attack of this disease in the course of the spring of 1801, from which, after repeated bleedings, he with difficulty recovered. On the 10th of April 1802, he was attacked with a severe shivering fit, followed by a correspondent hot one, and accompanied with symptoms of inflammation in his lungs : his surgeon, Mr Hadley, took from him, in the course of the day, 25 ounces of blood. The fever was removed, and in two or three days he became, to all appearance, quite well. On the 17th as he was walking in his garden with Mrs Darwin, and a lady of about his own age, the latter remarked, that he would have sufficient employment for ten years in bringing all his plans about the place to perfection. "You madam (he replied) have as good a prospect as any body I know, of your age, of living ten years ; I have not." Mrs Darwin remarked his good looks, spirits, and strength. He said, "I always appear particularly well immediately before I become ill." He sat with his family in the evening, conversing with his usual cheerfulness ; went to bed, and rose at six on the following morning ; wrote some letters till after seven, when he was seized with a chilly fit, which increased, and was attended with thirst. He then sat down by the kitchen-fire and drank a considerable quantity of butter-milk ; but feeling himself much indisposed, he lay down on a sofa, when becoming more cold and torpid, he was raised up, and placed in an arm-chair, where, without pain or any emotion, he expired a little before nine, in the 71st year of his age.

Dr Darwin left a widow and six children, three boys and three girls, by his last marriage. There was also another child, who died an infant. Beside these, he left two natural daughters whom he had established in a school at Ashbourne, and for whose instruction

and assistance he composed, and published his "Treatise on Female Education." Darwin.

During the whole of his life, Dr Darwin was remarkable for great benevolence of disposition, and it was particularly conspicuous in the care he took even of the lowest animals. The keenness of his feelings on this subject has been attributed to the strong impression made upon his mind by a representation of the tortures of the inquisition, which was shown to him at an early age. He had frequently expressed a strong desire, that the termination of his existence might be without pain, having always looked upon death as the less evil of the two. He was of a middle stature, in person gross and corpulent ; his features were coarse, and his countenance heavy ; if not wholly void of animation, it certainly was by no means expressive. In his gait and dress he was rather clumsy and slovenly, and frequently walked with his tongue hanging out of his mouth.

His conversation abounded with very unequal sallies of wit : when he found himself engaged with a powerful antagonist in argument, he had sometimes recourse to ridicule, a weapon which he did not always handle with dexterity, for he was affected with an impediment in his speech which rendered his enunciation scarcely intelligible.

About the age of twenty-one, Dr Darwin was seized with a fit of the gout ; in consequence of which he totally abstained from all fermented liquors, not even tasting small beer, or a drop of any kind of wine ; but he ate plentifully of flesh-meat, and all kinds of vegetables and fruit, using for his drink, at meals, chiefly water alone, or cream and water, with tea and coffee between them, as usual. By this abstinence from fermented liquors, he kept quite free from gout for 15 years, and from some other complaints to which he had been subject. He then indulged himself occasionally with a little wine and water ; cyder and water, &c. but was speedily admonished into his former temperance, by a paroxysm of the gout. He was in the habit of eating a large quantity of food, and his stomach possessed a strong power of digestion. His advice frequently was "Eat, or be eaten ;" but he took every opportunity to impress a dread of all fermented liquors on the minds of his patients, whose diseases he was too ready to represent as originating in the frequent use of them. In the "Botanic Garden," he has also taken an opportunity to express his strong antipathy against fermented and spirituous liquors, by comparing their effects to that of the Promethean fire : "The ancient story of Prometheus, who concealed in his bosom the fire he had stolen, and afterward had a vulture perpetually gnawing his liver, affords so apt an allegory for the effects of drinking spirituous liquors, that one should be induced to think the art of distillation, as well as some other chemical processes (such as calcining gold) had been known in times of great antiquity, and lost again. The swallowing drams cannot be better represented in hieroglyphic language, than by taking fire into one's bosom ; and certain it is, that the general effect of drinking fermented or spirituous liquors is an inflamed, schirrous, or paralytic liver, with its various critical or consequential diseases, as leprous eruptions on the face, gout, dropsy, epilepsy, and insanity."

The

Darwin.

The various productions of Dr Darwin's fanciful and philosophical pen, have long since been exposed to public criticism, and received an ample share, as well of obloquy as applause. Still, however, he has claims to celebrity from the literary lustre which adorns his character, as a medical philosopher, a philosophical agriculturist, and a poet.

The pretensions of Dr Darwin to high rank as a medical philosopher will, of course, substantiate themselves in the merits, numerous and solid as they are, of the "Zoonomia." In whichever point of view this work shall be considered, whether as a mere repository of curious natural and medical facts, or as a scheme and system of pathological and physiological disquisition, is probably matter of trifling import, so far as the reputation of its author is concerned. By either mode of appreciation it is, unquestionably, a noble effort of human labour or of human wit; and though its illustrious author may have sometimes erred from excess of ingenuity, and been occasionally blinded by too great a love of system, the Zoonomia will ever be considered as a production of transcendent merit.

As a philosophical agriculturist Dr Darwin must ever be entitled to the highest consideration. In order to profit by the multitudinous experiments of Hales, Grew, Malpighi, Bonnet, Du Hamel, Buffon, Spallanzani, Priestley, &c. collected in the "Phytologia," it is not necessary to take possession of the air-built theory of vegetation which is there constructed, and securely inhabit it as an edifice whose solidity is equal to its elegance. Whether the analogy is in fact so close between the parts and functions of animal and vegetable beings;—whether the anatomy of the one so strictly corresponds with that of the other, as to induce a belief that the latter are in reality an inferior order of the former, possessed of a brain, uterus, muscles, and complete nervous system, is an inquiry, which, however curious, must surely be subordinate in comparison with those grand and indisputable discoveries which the application of chemistry to agriculture has brought to light. A small portion only of the Phytologia is devoted to this fanciful system of vegetable physiology: the second part, divided into three sections, treats on the economy of vegetation; and the third, on agriculture and horticulture, is divided into six sections.

Dr Darwin, in his character as a poet, does not stand very high in the estimation of some. The ear is fascinated and seduced by the mellifluousness of his numbers, but there is a harlotry in his embellishments which is unchaste. His cadences are not sufficiently varied for a poem of such length as the "Botanic Garden;" indeed there is an evident mechanism in the construction of his lines which it is by no means pleasant to detect. But an imagination of unrivalled richness; a felicity of allusion to whatever can throw lustre on his subject, to ancient mythology and modern discoveries, to the works of nature and of art; if these are some of the essentials of poetry, Dr Darwin may certainly claim them as his own. No man, perhaps, was ever happier in the selection and composition of his epithets, had a more imperial command of words, or could elucidate with such accuracy and elegance the most complex and intricate machinery. Who but Dr Darwin would have thought of describing a porcelain

manufactory in verse; the powers and construction of a steam engine; the mechanism of a watch; and the complexity of a cotton-mill? These, and many similar descriptions, to be found in the Botanic Garden, are inimitable in their way. In some of his minor effusions he is particularly happy: the beautiful little song "to May," is exquisitely finished; and it would be difficult to find thirty lines in the Botanic Garden to rival in dignity and pathos the "Address to Swilcar's Oak," introduced in the Phytologia.

As a prose writer, Dr Darwin was incorrect; his grammatical errors are numerous, and he was even deficient in orthography. In the year 1758, he published in the Philosophical Transactions, "An attempt to confute the opinion of Henry Earl, concerning the ascent of vapour;" and "An account of the cure of a periodical hæmoptoe, by keeping the patient awake." This was followed by "Experiments on animal fluids in the exhausted receiver." He inserted in the Derby Mercury, an elegy written at Matlock, and addressed to Mrs Darwin; another piece occasioned by the appearance of a most fatal distemper among horned cattle, at Calke, near Derby; and a third article on occasion of the earthquake, which several years ago was felt at Derby, and in the surrounding country. In 1782, the Botanical Society of Litchfield published a translation of Linnæus's *Systema Vegetabilium*, the execution of which was principally confided to Dr Darwin. His other works have already been mentioned in the course of this biographical sketch. He left a poem entitled "The Temple of Nature," which was published after his death.

Next to medicine, mechanics, and almost every branch of natural history, engaged his attention. He not only pursued these studies with great ardour and diligence himself, but also embraced every opportunity of cultivating and encouraging them among his numerous connexions and acquaintance. Very soon after he settled in Derby, he instituted and established a philosophical society and library, both of which were in a flourishing state at the time of his decease. He also took pleasure in encouraging works in natural history.

But though the learning, taste, and genius of Dr Darwin, were eminently displayed in these pursuits, yet there was one great end, to the attainment of which all his talents and views were directed. He did not hesitate openly and repeatedly to declare, that the acquisition of wealth was the leading object of all his literary undertakings.

However, he was by no means insensible to the value of reputation. During the last years of his life, the love of fame was a passion which had great power over his mind; and the incense of praise was so pleasant to him, that flattery was found to be the most successful means of gaining his notice and favour.

There are reasons for suspecting that Dr Darwin was not a believer in Divine Revelation. A few days before his death, a gentleman endeavoured to discover whether he entertained a belief and expectation of a future state of existence: the doctor was observed to speak with a considerable degree of sedateness on the subject, and remarked, that it was natural to extend our wishes and views beyond the present scene, and

Darwin.

that

Datypus
||
Date.

that it was right to pursue such measures as are likely to secure our happiness in another world; "but," he added, "let us not hear any thing about hell."

DASYPUS, the ARMADILLO or *Tatou*, a genus of quadrupeds belonging to the order of *Bruta*. See MAMMALIA *Index*.

DATA, among mathematicians, a term for such things or quantities as are given or known, in order to find other things thereby that are unknown. The *data* of Euclid is the first in order of the books that have been written by the ancient geometricians, to facilitate and promote the method of resolution or analysis. In general, a thing is said to be given which is either actually exhibited, or can be found out, that is, which is either known by hypothesis, or that can be demonstrated to be known: and the propositions in the book of Euclid's *data* shew what things can be found out or known, from those that by hypothesis are already known: so that in the analysis or investigation of a problem, from the things that are laid down as given or known, by the help of these propositions, it is demonstrated that other things are given, and from these last that others again are given, and so on, till it is demonstrated that that which was proposed to be found out in the problem is given; and when this is done, the problem is solved, and its composition is made and derived from the compositions of the *data* which were employed in the analysis. And thus the *data* of Euclid are of the most general and necessary use in the solution of problems of every kind.

Marinus, at the end of his preface to the *data*, is mistaken in asserting that Euclid has not used the synthetical, but the analytical method in delivering them: for though in the analysis of a theorem, the thing to be demonstrated is assumed in the analysis; yet in the demonstrations of the *data*, the thing to be demonstrated, which is, that something is given, is never once assumed in the demonstration; from which it is manifest, that every one of them is demonstrated synthetically: though indeed if a proposition of the *data* be turned into a problem, the demonstration of the proposition becomes the analysis of the problem. *Simpson's Preface to his edition of the Data*.

From the primary use of the word *data* in mathematics, it has been transplanted into other arts; as philosophy, medicine, &c. where it expresses any quantity, which, for the sake of a present calculation, is taken for granted to be such, without requiring an immediate proof for its certainty; called also the *given* quantity, number, or power. And hence also such things as are known, from whence, either in natural philosophy, the animal mechanism, or the operation of medicines, we come to the knowledge of others unknown, are now frequently in physical writers called *data*.

DATE, an addition or appendage in writings, acts, instruments, letters, &c. expressing the day and month of the year when the act or letter was passed or signed; together with the place where the same was done. The word is formed from the Latin *datum*, "given," the participle of *do*, "I give."

Our ancient deeds had no dates, but only the month and year, to signify that they were not made in haste, or in the space of a day, but upon longer and more mature deliberation. The king's grants began with

these words, *Presentibus et futuris*, &c. but the grants of private persons with *Omnibus, presentes literas inspecturis*, &c.

Date
||
Daubenton.

A deed is good, though it mentions no date or hath a false date; or even if it hath an impossible date, as the 30th of February; provided the real day of its being dated or given, that is, delivered, can be proved. *Blackst. Com.* vol. ii. p. 304.

DATE, the fruit of the great palm-tree. See PHOENIX, BOTANY *Index*.

DATI, CARLO, professor of polite learning at Florence. His native country became very famous, as well on account of his works, as of the eulogies which have been bestowed on him by learned men. The chief work to which Dati applied himself, was *Della Pittura Antica*, on which he published an essay in the year 1667. He died in 1675, much lamented, as well for his humanity and amiable manners as for his parts and learning.

DATISCA, a genus of plants belonging to the dioecia class; and in the natural method ranking under the 54th order, *Miscellaneæ*.

DATISI, in *Logic*, a mode of syllogisms in the third figure, wherein the major is an universal affirmative, and the minor and conclusion particular affirmative propositions. For example,

- DA- All who serve God are kings;
TI- Some who serve God are poor;
SI. Therefore some who are poor are kings.

DATIVE, in *Grammar*, the third case in the declension of nouns: expressing the state or relation of a thing to whose profit or loss some other thing is referred. See GRAMMAR.

It is called *dative*, because usually governed by a verb, implying something to be given to some person. As, *commodare Socrati*, "to lend to Socrates;" *utilis reipublicæ*, "useful to the commonwealth;" *perniciosus ecclesiæ*, "pernicious to the church."

In English, where we have properly no cases, this relation is expressed by the sign *to* or *for*.

DATUM, or DATUS, in *Ancient Geography*, a town of Thrace, situated between Neapolis and the river Nestus: A colony of Thracians, according to Eustathius; who places it on the sea-coast, near the Strymon, in a rich and fruitful soil, famous for ship-building and mines of gold; hence the proverb *Δαλος Αγυρον*, denoting prosperity and plenty (Strabo.) Apian describes it as seated on a steep eminence, the whole of which it covered. It was taken by Philip of Macedon, who changed its name to Philippi, being originally called Crenides on account of its springs. It was afterwards famous for the defeat of Brutus and Cassius, by Augustus and Antony.

DATURA, the THORN-APPLE: A genus of plants belonging to the pentandria class; and in the natural method ranking under the 28th order, *Luridæ*. See BOTANY *Index*.

DAUBENTON, LOUIS JEAN MARIE, a distinguished naturalist, was born at Montbar, in the department of the Côte d'Or, in France, on the 29th of May 1716. His father, Jean Daubenton, was a notary in that place, and his mother's name was Marie Pichetot. In his youth he distinguished himself by the sweetness of his temper, and by his diligent applica-

Daubenton. tion to his studies. The Jesuits of Dijon, under whose tuition he was first placed, noticed him in a peculiar manner. Having gone through a course of what was called *philosophy*, under the Dominicans of Dijon, his father, who destined him for the church, and who had made him assume the ecclesiastical dress at the age of twelve, sent him to Paris to study theology. But his predilection for natural history induced him privately to study medicine. Accordingly he attended the lectures of Baron, Martinenq, and Col de Villars, and likewise those of Winslow, Hunault, and Antoine de Jussieu in the botanic garden. The death of his father in 1736 enabled him to follow his inclination without constraint. Accordingly he took a degree at Rheims in 1741, and returned to his own country with the intention of following the practice of medicine. But fortune destined him for a more brilliant career.

Montbar had given birth, about the same time, to another man of a very different character, who, though possessed of an independent fortune, a robust constitution, and actuated by a violent passion for pleasure, had determined notwithstanding to devote himself to the cultivation of the sciences. This man was Buffon. Hesitating for some time what branch of physics he should make his peculiar study, he tried by turns geometry, mechanical philosophy, and agriculture. At last his friend Dufay, who during his short superintendance had reduced the botanic garden from that state of neglect in which former naturalists had left it, and who had procured for Buffon the reversion of his office, dying, and leaving him his place, Buffon's choice was fixed on natural history, and he saw before him that wide field which he afterwards traversed with so much reputation.

Natural history was at that time little else than a dry catalogue of names, destitute of that methodical arrangement, of that precision, of those interesting details which have since distinguished it. It occupied a very low station among the sciences, and instead of being a fashionable study, was degraded into the drudge of medicine and surgery. Buffon formed the bold plan of giving life to this dry and apparently sterile mass, of painting nature as she is, always young, always active; of pointing out the harmony of all her parts, and the laws by which they are combined into one system, and of giving his picture all the glow, all the freshness, all the charms of nature herself. But to secure success it was necessary to make truth the basis of his system. Every thing must be collected, revised, and examined. The forms and dimensions of animals must be compared, and their internal structure ascertained. The ardent and impatient spirit of Buffon could ill brook a task so tedious and painful, and the imperfection of his sight rendered him unqualified for it. He looked about, therefore, for a man possessed of sufficient judgment, patience, and neatness of hand for his purpose, and at the same time modest enough to submit willingly to act a secondary part. He found such a man in Daubenton, the companion of his infancy.

The character of these two philosophers was almost opposite in every respect. Buffon was violent, impatient, rash; Daubenton was all gentleness, patience, and caution: Buffon wished to divine the truth rather

VOL. VII. Part I.

than to discover it; Daubenton believed nothing which he had not himself seen and ascertained. Buffon suffered his imagination to lead him from nature; Daubenton, on the contrary, discarded from his writings every expression which was calculated to mislead. They were thus happily fitted to correct each other's faults. Accordingly the history of quadrupeds, which appeared while they laboured together, is the most exempt from error of any of the divisions which constitute Buffon's natural history.

Buffon drew Daubenton to Paris about 1742: procured for him the place of demonstrator of the cabinet of natural history, at first with a salary of only 500 francs, but which was gradually increased to 2000. He furnished him likewise with a lodging, and neglected nothing to secure his comfort and convenience. Daubenton on his side devoted himself to second the views of his benefactor. The cabinet of natural history, which was arranged, and in a great measure collected by his means, was of immense service. In the history of quadrupeds, he gave the description and dissection of 182 species of quadrupeds. These details contained a vast number of new facts, and arranged in such a manner that the most curious results are often obtained merely by comparing them together. This work procured for Daubenton a very high reputation, and drew upon him the envy of Reaumur, who at that time considered himself at the head of natural history. But the credit and reputation of Buffon was sufficient to prevent his friend from falling a victim to the attack of this formidable antagonist.

In the subsequent parts of his natural history Buffon was persuaded to separate himself from Daubenton. This injured the precision and value of these parts excessively; while it deprived Daubenton of 12,000 francs a year. Afterwards the intimacy between them revived and continued till the death of Buffon.

The number of dissertations on natural history which Daubenton published in the Memoirs of the French Academy, is so great, that even a list of them would be too long for this place. Descriptions of different animals, dissections, comparisons between the forms of different animals, anatomical examinations of fossil bones, to determine the animals to which they had belonged, the physiology of vegetables, and different parts of mineralogy, successively occupied him; not to mention his experiments on agriculture and rural economy, which, however, were of more service to him afterwards than all the rest of his labours, on account of the reputation among the populace which they had procured him.

In the year 1794, when the dregs of the people were masters of France, Daubenton was under the necessity of applying to the section of Sans-culottes for a certificate of civism, to enable him to retain his place in the garden of plants, which he had filled with honour for 52 years. A professor and academician would scarcely have obtained it; but it was readily granted to Shepherd Daubenton, under which title it had been fortunately presented. The following is a translation of this certificate:

SECTION OF THE SANS-CULOTTES.

Copy of the extract of the deliberations of the General Assembly of the sitting of the fifth of the first decade

Daubenton
||
Davenant.

of the 3d month of the 2d year of the French Republic one and indivisible.

It appears, that after the report made to the fraternal society of the section of the *sans-culottes* concerning the good civism and acts of humanity which the Shepherd Daubenton has always testified, the General Assembly unanimously decree to give him a certificate of civism, and the president followed by several members of the said assembly give him the fraternal hug, with all the acclamations due to a true model of humanity, which has been testified by several renewals of the hug.

(Signed) R. G. DARDEL, President.

Besides his publications, Daubenton was of great service to science as a lecturer. From 1775 he gave lectures on natural history in the college of medicine. In 1783 he lectured on rural economy. He was appointed professor of mineralogy by the convention at the garden of plants, and he gave lectures during the ephemeral existence of the Normal school. He was likewise one of the editors of the *Journal des Savans*, and contributed to both the Encyclopedias. As a lecturer he was extremely popular, and what is uncommon, he retained his popularity to the last.

Notwithstanding the feebleness of his constitution, he arrived at a very advanced age without much disease or loss of his faculties. This may be, in some measure, ascribed to the gentleness of his temper, and his remarkable resignation. He was temperate and moderate even in his studies. Part of his time was spent in reading romances with his wife.

In the year 1799 he was appointed one of the members of the conservative senate, and he resolved to attend the meeting of it. This obliged him to alter his regimen. The season was severe. At the first meeting that he attended he fell from his seat in an apoplectic fit. The most speedy assistance was procured, and by its means he was restored to his senses. With the utmost calmness he pointed out with his fingers the progress of the paralysis in different parts of his body, and died on the first of January 1800 without a struggle.

DAUCUS, the CARROT, a genus of plants belonging to the pentandria class; and in the natural method ranking under the 45th order, *Umbellatae*. See BOTANY and AGRICULTURE *Index*.

DAVENANT, SIR WILLIAM, an eminent poet of the 17th century, was born at Oxford in 1606. After some stay at the university, he entered into the service of Frances first duchess of Richmond, and afterwards of Fulke Grevil, Lord Brook; who having an excellent taste for poetry, was much charmed with him. He got great esteem by writing poems and plays; and upon the death of Ben Johnson was created poet-laureat. He wrote his poem *Gondibert* at Paris. He formed a design for carrying over a considerable number of artificers, especially weavers, to Virginia, by the encouragement of Henrietta Maria, the queen-mother of England, who obtained leave for him of the king of France. But he and his company were seized by some parliament ships, and he carried prisoner first to the isle of Wight, and then to the tower of London; but, by the mediation of Milton and others, he got his liberty as a prisoner at large. At this time tragedies and co-

medies being prohibited, he contrived to set up an opera, to be performed by declamations and music. This Italian opera began in Rutland-house in Charterhouse-yard, 1656; but was afterwards removed to the Cock-pit in Drury-Lane, and was much frequented for many years. In 1648, his *Madagascar*, with other poems, were printed. He died in 1668.

DAVENANT, Dr Charles, an eminent civilian and writer, eldest son of the preceding, and educated at Cambridge: he wrote several political tracts, and likewise plays. He was (1685) empowered, with the master of the revels, to inspect the plays designed for the stage, that no immoralities might be presented. His *Essays on Trade* are in high esteem, and were reprinted in 5 vols 8vo, in 1771. Dr Davenant was inspector-general of exports and imports; and died in 1712.

DAVENTRY, or DAINTRY, a handsome town of Northamptonshire in England, situated on the side of a hill on the great road to Chester and Carlisle. W. Long. 1. 15. N. Lat. 52. 12.

DAUGHTER, (*filia*), a female child. See the article CHILDREN.

Daughters, among the ancients, were more frequently exposed than sons, as requiring greater charge to educate and settle them in the world. See *Exposure of Children*. Those who had no legitimate sons were obliged, by the Athenian laws, to leave their estates to their daughters, who were confined to marry their nearest relations, otherwise to forfeit their inheritance; as we find to have been practised likewise among the Jews, many of whose laws seem to have been transcribed by Solon.

If an heiress happened to be married before her father's death, this did not hinder the nearest relation to claim the inheritance, and even to take the woman from her husband; which is said to have been a common case.

DAVID, king of Israel, and Hebrew poet, was born at Bethlehem 1085, and died 1014 years B. C. His history is particularly recorded in the sacred writings.

ST DAVID'S, an episcopal town of Pembroke-shire, in S. Wales; but has neither market nor fair. It is seated in a barren soil on the river Ilen, not a mile from the sea-shore. It was once a considerable place, and had walls, which are now demolished; but it is small at present, and thinly inhabited; however, the cathedral is a pretty good structure. From the cape, near this place, there is a prospect into Ireland. W. Long. 5. 20. N. Lat. 52. 0.

ST DAVID'S, a town and fort of Asia, in the peninsula on this side the Ganges, and on the coast of Coromandel, 80 miles south of Fort St George. E. Long. 79. 55. N. Lat. 11. 30. On the taking of Madras by the French in 1746, the presidency of all the English settlements on the Coromandel coast was removed to Fort St David, and continued there till about the year 1752, when it was removed back to Madras. In June 1758, the fort was taken and demolished by the French, and has never been rebuilt since.

DAVIDISTS, DAVIDICI, or DAVID-GEORGIANE, a sect of heretics, the adherents of David George, a native of Delft, who, in 1525, began to preach a new doctrine; publishing himself to be the true Messiah; and

Davenant
||
Davidists.

Davila. and that he was sent thither to fill heaven, which was quite empty for want of people to deserve it. He is likewise said to have denied the existence of angels, good and evil, of heaven and hell, and to have rejected the doctrine of a future judgment. He rejected marriage, with the Adamites; held, with Manes, that the soul was not defiled by sin; and laughed at the self-denial so much recommended by Jesus Christ. Such were his principal errors. He made his escape from Delft, and retired first to Friesland, and then to Basil, where he changed his name, assuming that of John Bruck, and died in 1556.

He left some disciples behind him, to whom he promised, that he would rise again at the end of three years. Nor was he altogether a false prophet herein; for the magistrates of that city, being informed, at the three years end, of what he had taught, ordered him to be dug up and burnt, together with his writings, by the common hangman.

There are still some remains of this ridiculous sect in Holstein, Friesland, and other countries, whose temper and conduct seem to discredit the exaggerated accounts which some writers have given of their founder. He was probably a deluded fanatic and mystic.

DAVILA, HENRY CATHARINE, a celebrated historian, was the youngest son of Antonio Davila, grand constable of Cyprus, who on the taking of that island by the Turks in 1570, had been obliged to retire into Spain, whence this family supposed they had derived their name and origin. From Spain Antonio repaired to the court of France, and settled his son Louis and two daughters under the patronage of Catharine of Medicis; whose name he afterwards gave to the young historian, born 1576, at an ancient castle in the territories of Padua, though generally called a native of Cyprus. The little Davila was brought early into France; and at the age of 18 he signalized himself in the military scenes of that country. His last exploit there was at the siege of Amiens, where he fought under Henry IV. and received a wound in the knee, as he relates himself in his history. After peace was established in France, he withdrew into Italy, and entered into the service of the Venetians. Davila, while he was at Venice, wrote his admirable history of the civil wars in France, which contains every thing worth notice that passed from the death of Henry II. in 1559, to the peace of Vervins in 1598. He continued to serve the republic of Venice with great reputation, till a most unfortunate adventure put an end to his life in 1631. Passing through Verona with his wife and family, on his way to Crema, which he was appointed to defend, and demanding, according to the usual custom of persons in his station, a supply of horses and carriages for his retinue, a brutal Veronese, called *Il Turco*, entered the room where he and his family were at supper, and being mildly reprimanded for his intrusion by Davila, discharged a pistol at the historian, and shot him dead on the instant. His accomplices also killed the chaplain of Davila, and wounded most of his attendants. But his eldest son Antonio, a youth of 18, revenged the death of his father, by killing the murderer on the spot. All the confederates were secured next morning, and publicly executed at Verona. It is very remarkable, that Davila

passed no censure on the massacre of St Bartholomew. His character of the queen-mother has that partiality, which it was natural for him to show to the patroness of his family; but his general veracity is confirmed by the great authority of the first duke of Epernon, who (to use the words of Lord Bolingbroke) "had been an actor, and a principal actor too, in many of the scenes that Davila recites." Girard, secretary to the duke, and no contemptible biographer, relates, that this history came down to the place where the old man resided in Gascony, a little before his death; that he read it to him; that the duke confirmed the truth of the narration of it; and seemed only surprised by what means the author could be so well informed of the most secret councils and measures of those times.

DAVIS, SIR JOHN, an eminent lawyer and poet, born about the year 1570. He first distinguished himself by his poem *Nosce Teipsum*, on the Immortality of the Soul. He became attorney-general, and speaker of the house of commons in Ireland; and afterwards was appointed lord chief justice of the court of King's Bench in England, but died before his installation, in 1626. He published many law tracts; but was esteemed more as a scholar and a wit than as a lawyer.

DAVIS, John, a famous navigator in the 16th century, was born at Sandridge, near Dartmouth in Devonshire; and distinguished himself by making three voyages to the most northern parts of America, in order to discover a north-west passage to the East Indies; in which he discovered the straits which bear his name. He afterwards performed five voyages to the East Indies; in the last of which he was slain in a desperate fight with some Japanese, near the coast of Malacca, on the 27th of December 1605. He wrote an account of his second voyage for the discovery of the north-west passage; a voyage to the East Indies; and other tracts.

DAVIS'S Straits. See *NEW BRITAIN.*

DAVIT, in a ship, a long beam of timber, represented by *a, a*, Plate CLXIX. and used as a crane whereby to hoist the flukes of the anchor to the top of the bow, without injuring the sides of the ship as it ascends; an operation which, by mariners, is called *fishing the anchor*. The anchors being situated on both the bows, the davit may be occasionally shifted so as to project over either side of the ship, according to the position of that anchor on which it is employed. The inner end of the davit is secured by being thrust into a square ring of iron *b*, which is bolted to the deck, and forelocked under the beams. This ring, which is called the *span-shackle*, exhibited at Large by fig. 9. is fixed exactly in the middle of the deck, and close behind the foremast. Upon the outer end of the davit is hung a large block *c*, through which a strong rope traverles, called the *fish-pendant*, *d*; to whose foremost end is fitted a large iron hook *e*, and to its after-end a tackle or complication of pulleys, *f*; the former of which is called the *fish-book*, and the latter the *fish-tackle*.

The davit, therefore, according to the sea phrase, is employed to *fish the anchor*; which being previously *catted*, the fish-hook is fastened upon its flukes; and the efforts of the tackle being transmitted to the hook, by means of the fish-pendant, draws up that part of the anchor sufficiently high upon the bow to fasten it,

Dauphin. which is done by the *shank-painter*. See that article. There is also a davit of a smaller kind occasionally fixed in the long-boat, and employed to weigh the anchor therein.

DAUPHIN, is a title which was given to the eldest son of the royal family of France, and presumptive heir of the crown; on account of the province of Dauphiné, which in 1343 was given to Philip de Valois, on this condition, by Humbert dauphin of the Viennois. The dauphin, in his letters patent, styled himself, *By the grace of God, eldest son of France, and dauphin of Viennois.*

DAUPHIN was anciently the title or appellation of the prince of Viennois in France.

Most authors who have sought the origin of the name *Dauphin* and *Dauphine*, seem to have given too much loose to conjecture. Du Chesne is of opinion that it was the grandson of Guy the Fat who first bore the name of *dauphin*. Chorier observes, that William, canon of Notre Dame at Grenoble, who has written the life of Margaret, daughter of Stephen earl of Burgundy, married with Guy, son of Guy the Fat, calls the latter simply Guy the Old, and the former always Count Dauphin; and adds, that no record nor monument ever attributes the title of dauphin to Guy the Fat, or any of his predecessors: so that it must necessarily have taken its rise in his son, all whose successors so constantly assumed it, that it became the proper name of the family. He died in 1142, in the flower of his youth; so that it must be about the year 1120 that the title commenced; and without doubt, adds he, on some illustrious occasion. He observes farther, that this prince was of a military disposition, and delighted in nothing but war: and again, that it was the custom of the cavaliers to deck their casques, coats of arms, and the housing of their horses, with some figure or device peculiar to themselves, whereby they were distinguished from all others engaged in the same combat or tournament. From all these circumstances he conjectures, that this Guy chose the dolphin for his signature; that this was the crest of his helmet; and that he bore it on his coat in some notable tournament or battle, wherein he distinguished himself. And this, Chorier makes no doubt, is the real origin of the appellation. Nothing was more common in those times than to make proper names become the names of families or dignities. Witness the Ademars, Arthands, Aynards, Atlemans, Berengers, and many others; who all owe their names to some one of their ancestors, from whom it has been transmitted throughout the family.

The seigneurs or lords of Auvergne have likewise borne the appellation of *dauphin*; but the dauphins of Auvergne had it not till a good while after those of the Viennois, and even received it from them. The manner was this: Guy VIII. dauphin of Viennois, had by his wife Margaret, daughter of Stephen earl of Burgundy, a son and two daughters. The son was Guy IX. his successor. Beatrix, one of the daughters, was married to the count d'Auvergne, who, according to Blondel, was William V. or rather, as Chorier and others hold, Robert VI. father of William V. This prince lost the greatest part of the county Auvergne, which was taken from him by his uncle William, af-

sisted by Louis the Young: and was only left master of the little canton whereof Vodable is the capital. He had a son whom he called Dauphin, on account of Guy, or Guignes, his uncle by the mother's side. From his time his successors, holding the same petty canton of Auvergne, styled themselves *dauphins of Auvergne*, and bore a dolphin for their arms.

DAUPHINS, or *Delphins*, in literary history, a name given to the commentators on the ancient Latin authors, who were employed by Louis XIV. of France for the benefit of the prince, under the care and direction of M. de Montausier his governor, and Bossuet and Huet his preceptors. They were 39 in number.

DAUPHINY, a late province of France, bounded on the west by the Rhone, on the north by the Rhone and Savoy, on the south by Provence, and on the east by the Alps, and now forming the departments of Drome, Isere, and Upper Alps. In some places it is very fertile; and produces corn, wine, olives, woad, copperas, silk, crystal, iron, and copper. But the greatest part of the province is barren, and the inhabitants are obliged to go into other countries for subsistence. The mountains abound in game of all sorts; and here are fir-trees proper for masts. The principal rivers are, the Rhone, the Durance, the Isere, and the Drome. There is a great number of mineral springs; and Grenoble is the capital town.

DAURAT, JOHN, an eminent French poet, born in 1507. In the reign of Henry II. he was preceptor to the king's pages, and Charles IX. who took great delight in his conversation, honoured him with the title of his poet; but his generosity and want of management placed him in that class of learned men who have been very near starving. Conformable to the taste of the age, he had so much skill in making anagrams, that several illustrious persons gave him their names to anagrammatize: he also undertook to explain the Centuries of Nostradamus. Making verses was a disease in him: for no book was printed, nor did any person of consequence die, but Daurat made some verses on the occasion; as if he had been poet ordinary, or his muse had been a hired mourner to the whole kingdom. Scaliger tells us, that he spent the latter part of his life in endeavouring to find all the bible in Homer. He died in 1588.

DAY, according to the most natural and obvious sense of the word, signifies that space of time during which it continues to be light; in contradistinction to night, which is that portion of time wherein it is dark: but the space of time in which it is light, being somewhat vague and indeterminate, the time between the rising and the setting of the sun is usually looked on as the day; and the time which lapses from its setting to its rising again, the night.

The word *day* is often taken in a large sense, so as to include the night also; or to denote the time of a whole apparent revolution of the sun round the earth; in which sense it is called by some a natural day, and by others an artificial one: but, to avoid confusion, it is usual to call it in the former sense simply the *day*, and in the latter a *nycthemeron*; by which term that acceptance of it is aptly denoted, as it implies both day and night.

The

Day.

The nychthemeron is divided into twenty-four parts, called *hours*; which are of two sorts, equal, and unequal or temporary. See the article HOUR.

Different nations begin their day at a different hour. Thus the Egyptians begin their day at midnight; from whom Hippocrates introduced that way of reckoning into astronomy, and Copernicus and others have followed him: But the greatest part of astronomers reckon the day to begin at noon, and so count twenty-four hours, till the noon of the next day; and not twice twelve, according to the vulgar computation. The method of beginning the day at midnight prevails in Britain, France, Spain, and most parts of Europe.

The Babylonians began their day at sunrising; reckoning the hour immediately before its rising again, the twenty-fourth hour of the day; from whence the hours reckoned in this way are called the *Babylonic*. In several parts of Germany, they begin their day at sunsetting, and reckon on till it sets next day, calling that the *twenty-fourth hour*: these are generally termed *Italian hours*. The Jews also began their nychthemeron at sunsetting; but then they divided it into twice twelve hours as we do; reckoning twelve for the day, be it long or short, and twelve for the night; so that their hours continually varying with the day and night, the hours of the day were longer than those of the night for one half year, and the contrary the other; from whence their hours are called temporary: those at the time of the equinoxes became equal, because then those of the day and night are so. The Romans also reckoned their hours after this manner, as do the Turks at this day.

This kind of hours is called *planetary*, because the seven planets were anciently looked upon as presiding over the affairs of the world, and to take it by turns each of these hours, according to the following order: Saturn first, then Jupiter, Mars, the Sun, Venus, Mercury, and last of all the Moon: hence they denominated each day of the week from that planet whose turn it was to preside the first hour of the nychthemeron. Thus, assigning the first hour of Saturday to Saturn, the second will fall to Jupiter, the third to Mars, and so the twenty second of the same nychthemeron will fall to Saturn again, and therefore the twenty-third to Jupiter, and the last to Mars: so that on the first hour of the next day, it will fall to the Sun to preside; and by the like manner of reckoning, the first hour of the next will fall to the Moon; of the next to Mars; of the next to Mercury; of the next to Jupiter; and of the next to Venus: hence the days of the week came to be distinguished by the Latin names of *Dies Saturni, Solis, Lune, Martis, Mercurii, Jovis, and Veneris*; and among us, by the names of Saturday, Sunday, Monday, &c.

DAY-Coal, in *Natural History*, a name given by the miners of England, and the common people who live in coal countries, to that seam or stratum of the coal which lies uppermost in the earth. The same vein or stratum of coal usually runs a great way through the country, and dips and rises in the earth at different places; so that this upper stratum, or day-coal, is in the various parts of the same stratum, sometimes near the surface, and sometimes many fathoms deep. The subterranean fires found in some of our coal-countries

feed principally on this coal; and are nearer to or farther from the surface as it rises or sinks.

DAY-Fly. See EPHEMERIS, ENTOMOLOGY *Index*.

DAY-Net, among fowlers. See NET.

DAYS of Grace, are those granted by the court at the prayer of the defendant or plaintiff, in whose delay it is.

DAYS of Grace, in *Commerce*, are a customary number of days allowed for the payment of a bill of exchange, &c. after the same becomes due.

Three days of grace are allowed in Britain; ten in France and Dantzic; eight at Naples; six at Venice, Amsterdam, Rotterdam, and Antwerp; four at Frankfurt; five at Leipzig; twelve at Hamburg; six in Portugal; 14 in Spain; 30 in Genoa, &c.

In Britain the days of grace are given and taken as a matter of course, the bill being only paid on the last day; but in other countries, where the time is much longer, it would be reckoned dishonourable for a merchant to take advantage of it; bills are therefore paid on the very day they fall due.

DAY'S Man, in the north of England, an arbitrator or person chosen to determine an affair in dispute.

INTERCALARY DAYS. See INTERCALARY *Days*.

DAYS Work, among seamen, the reckoning or account of the ship's course during 24 hours, or between noon and noon, according to the rules of trigonometry. See DEAD-*Reckoning*.

DAZE, in *Natural History*, a name given by our miners to a glittering sort of stone, which often occurs in their works; and, as it is an unprofitable substance, is one of those things they call *wedges*. The word *daze* takes in, with them, every stone that is hard and glittering: and therefore it comprehends the whole genus of the telangia or stony nodules, which have the flakes of talc in their substance: these according to the colour of the stony matter they are bedded in, and their own colour, give the names of *black daze, white, red, and yellow daze*, to these stones.

DEACON, (*Diaconus*), a person in the lowest degree of holy orders, whose business is to baptise, read in the church, and assist at the celebration of the eucharist. The word is formed from the Latin *Diaconus*, of the Greek *διακονος*, minister, servant. Deacons were instituted seven in number, by the apostles, *Acts* chap. vi. which number was retained a long time in several churches. Their office was to serve in the Agapæ, and to distribute the bread and wine to the communicants. Another part of the office of deacons was to be a sort of monitors and directors to the people in the exercise of their public devotions in the church; for which purpose they made use of certain known forms of words, to give notice when each part of the service began. Whence they are sometimes called *cirocrukes*, "the holy cryers of the church."

Deacons had, by license and authority from the bishop, a power to preach, to reconcile penitents and grant them absolution, and to represent their bishops in general councils. Their office out of the church was to take care of the necessitous, such as orphans, widows, prisoners, and all the poor and sick who had any title to be maintained out of the revenues of the church; to inquire into the morals and conversation of the people, and to make their report thereof to the bishop. Whence, on account of the variety of business, it was usual to have several deacons in the same church.

Day
||
Deacon.

In.



Deaconess.

In the Romish church, it is the deacon's office to incense the officiating priest or prelate; to lay the corporal on the altar; to receive the patten or cup from the subdeacon, and present them to the person officiating; to incense the choir; to receive the pix from the officiating prelate, and carry it to the subdeacon; and at the pontifical mass, when the bishop gives the blessing, to put the mitre on his head, and to take off the archbishop's pall and lay it on the altar. In England, the form of ordaining deacons, declares that it is their office to assist the priest in the distribution of the holy communion: in which, agreeably to the practice of the ancient church, they are confined to the administering the wine to the communicants. A deacon in England is not capable of any ecclesiastical promotion; yet he may be a chaplain to a family, curate to a beneficed clergyman, or lecturer to a parish-church. He may be ordained at 23 years of age, *anno currente*; but it is expressly provided, that the bishop shall not ordain the same person a priest and deacon in the same day. Deacons, according to St Paul, should be chaste, sincere, and blameless; neither great drinkers, nor given to filthy lucre: they should hold the mystery of the faith in a pure conscience; and should be well approved before they are admitted to the ministry. In the church of Scotland, the deacon's office is only to take care of the poor.

DEACONESS, a female deacon; an order of women who had their distinct offices and services in the primitive church. This office appears as ancient as the apostolical age: for St Paul calls Phebe a servant of the church of Cenchrea. The original word is *διακονος*, answerable to the Latin word *ministra*. Tertullian calls them *vidue*, "widows," because they were commonly chosen out of the widows of the church; and, for the same reason, Epiphanius, and the council of Laodicea, calls them *πρεσβυτιδας*, elderly women, because none but such were ordinarily taken into this office. For, indeed, by some ancient laws, these four qualifications are required in every one that was to be admitted into this order. 1. That she should be a widow. 2. That she should be a widow that had born children. 3. A widow that was but once married. 4. One of a considerable age, 40, 50, or 60 years old. Though all these rules admitted of exceptions. Concerning their ordination, whether it was always performed by imposition of hands, the learned are much divided in their sentiments. Baronius and Valesius think they were not, and make no other account of them than as mere lay-persons. But the author of the constitutions, speaking of their ordination, requires the bishop to use imposition of hands, with the form of prayer which is there recited. We are not, however, to imagine, that this ordination gave them any power to execute any part of the sacerdotal office. They were only to perform some inferior services of the church, and those chiefly relating to the women for whose sakes they were ordained. One part of their office was to assist the minister at the baptizing of women, to undress them for immersion, and to dress them again, that the whole ceremony might be performed with all the decency becoming so sacred an action. Another part of their office was to be private catechists to the women-catechumens who were preparing for baptism. They were likewise to attend the women that were sick and

in distress; to minister to martyrs and confessors in prison; to attend the women's gate in the church: and lastly, to assign all women their places in the church; regulate their behaviour, and preside over the rest of the widows; whence in some canons they are styled *προκαθημενας*, "governesses." This order, which since the 10th or 12th century has been wholly laid aside, was not abolished everywhere at once, but continued in the Greek church longer than in the Latin, and in some of the Latin churches longer than in others.

DEACONRY, *DIACONATE*, the order or ministry of a deacon or deaconess. See DEACON and DEACONESS.

DEACONRY, (*Diaconia*.) is also a name still reserved to the chapels and oratories in Rome, under the direction of the several deacons, in their respective regions or quarters.

To the deaconries were annexed a sort of hospitals or boards for the distribution of alms, governed by the regular deacons, called *cardinal deacons*, of whom there were seven, answering to the seven regions, their chief being called the *archdeacon*.

The hospital adjoining to the church of the deaconry had an administrator for the temporal concerns, called the *father of the deaconry*, who was sometimes a priest and sometimes a layman.

At present there are fourteen of these deaconries or hospitals at Rome, which are reserved to the cardinals. Du Cange gives us their names: as, the deaconry of St Maria in the Broad-way, the deaconry of St Eustachio near the Pantheon, &c.

DEAD LANGUAGES. See PHILOLOGY, chap. iii.

Preservation of DEAD BODIES. See EMBALMING.

Feast of the DEAD. See FEAST of the Dead.

DEAD-Lights, certain wooden ports which are made to fasten into the cabin-windows, to prevent the waves from gushing into the ship in a high sea. As they are made exactly to fit the windows, and are strong enough to resist the waves, they are always fixed in on the approach of a storm, and the glass lights taken out, which must otherwise be shattered to pieces by the surges, and suffer great quantities of water to enter the vessel.

DEAD-Mens-Eyes, in the sea language, a kind of blocks, with many holes in them, but no sheevers, whereby the shrouds are fastened to the chains: the crow-reef reeve also through these holes; and, in some ships, the main-stays are set tight in them; but then they have only one hole, through which the lanyards are passed several times. See PLATE CLXIX.

DEAD's Part. See LAW INDEX.

DEAD Reckoning, in Navigation, the judgment or estimation which is made of the place where a ship is situated; without any observation of the heavenly bodies. It is discovered by keeping an account of the distance she has run by the log, and of her course steered by the compass; and by rectifying these data by the usual allowance for drift, lee-way, &c. according to the ship's known trim. This reckoning, however, is always to be corrected, as often as any good observation of the sun can be obtained.

DEAD-Sea, in Geography, a lake of Judea, into which the river Jordan discharges itself; being about 70 miles long and 20 broad. See ASPHALTITES.

DEAD-Tops,

Dead
||
Deafness.

DEAD-Tops, a disease incident to young trees, and cured by cutting off the dead parts close to the next good twig or shoot, and claying them over as in grafting.

DEAD-Water, at sea, the eddy-water just astern of a ship; so called because it does not pass away so swift as the water running by her sides does. They say that a ship makes much dead-water when she has a great eddy following her stern.

DEADLY-CARROT. See *THAPSIA*.

DEADLY-Feud, in English law-books, a profession of irreconcilable enmity, till a person is revenged by the death of his enemy. The word *feud* is derived from the German *Fehd*; which, as Hottoman observes, signifies *modo bellum, modo capitales inimicitias* *. Such enmity and revenge were allowed by law in the time of the Saxons, viz. If any man was killed, and a pecuniary satisfaction was not made to the kindred, it was lawful for them to take up arms and revenge themselves on the murderer: which was called *deadly feud*. And this probably was the original of an

APPEAL.

DEAFNESS, the state of a person who wants the sense of hearing; or the disease of the ear, which prevents its due reception of sounds. See *MEDICINE Index*.

Deafness generally arises either from an obstruction or a compression of the auditory nerve; or from some collection of matter in the cavities of the inner ear; or from the auditory passage being stopped up by some hardened excrement; or, lastly, from some excrescence, a swelling of the glands, or some foreign body introduced within it.

Those born deaf are also dumb, as not being able to learn any language, at least in the common way. However, as the eyes in some measure serve them for ears, they may understand what is said by the motion of the lips, tongue, &c. of the speaker; and even accustom themselves to move their own, as they see other people do, and by this means learn to speak.— Thus it was that Dr Wallis taught two young gentlemen born deaf to know what was said to them, and to return pertinent answers. Digby gives us another instance of the same within his own knowledge; and there was a Swiss physician lately living in Amsterdam, one John Conrad Amman, who effected the same in several children born deaf with surprising success. He has reduced the thing to a fixed art or method, which he has published in his *Surdus Loquens*, Amstelod. 1692, and *de Loquela*, ibid. 1700.

In the Phil. Transf. N^o 312. we have an account by Mr Waller, R. S. Secr. of a man and his sister, each about 50 years old, born in the same town with Mr Waller, who had neither of them the least sense of hearing; yet both of them knew, by the motion of the lips only, whatever was said to them, and would answer pertinently to the question proposed. It seems they could both hear and speak when children, but lost their sense afterwards: whence they retained their speech, which, though uncouth, was yet intelligible.

Such another instance is that of Mr Goddy's daughter, minister of St Gervais in Geneva, related by Bishop Burnet. "At two years old they perceived she had lost her hearing; and ever since, though she hears

great noises, yet hears nothing of what is said to her. But by observing the motions of the mouth and lips of others, she acquired so many words, that out of these she has formed a sort of jargon, in which she can hold conversation whole days with those that can speak her language. She knows nothing that is said to her, unless she see the motion of their mouths that speak to her, so that in the night they are obliged to light candles to speak to her. One thing will appear the strangest part of the whole narration: she has a sister, with whom she has practised her language more than with any body else; and in the night, by laying her hand on her sister's mouth, she can perceive by that what she says, and so can discourse with her in the dark." Burn. Let. IV. p. 248†.

It is observable, that deaf persons, and several others thick of hearing, hear better and more easily if a loud noise be raised at the time when you speak to them; which is owing, no doubt, to the greater tension of the ear-drum on that occasion. Dr Wallis mentions a deaf woman, who if a drum were beat in the room could hear any thing very clearly; so that her husband hired a drummer for a servant, that by this means he might hold conversation with his wife. The same author mentions another, who, living near a steeple, could always hear very well if there was a ringing of three or four bells, but never else.

DEAL, a thin kind of fir-planks, of great use in carpentry. They are formed by sawing the trunk of a tree into a great many longitudinal divisions, of more or less thickness according to the purposes they are intended to serve.

A very good method of seasoning planks of deal and fir is to throw them into salt water as soon as they are sawed, and keep them there three or four days, frequently turning them; in this case they will be rendered much harder, by drying afterwards in the air and sun; but neither this, nor any other method yet known, will prevent them from shrinking.

Rods of deal expand gradually, or cross the grain, in moist weather, and contract again in dry; and thence have been found to make an useful hygrometer.

DEAL, a town of Kent in England, lying between Dover and Sandwich, in E. Long. 1. 20. N. Lat. 51. 16. is supposed to be the *Dola* of Nennius and is situated on a flat and level coast. This town, according to Dr Campbell justifies an observation he had made in favour of situations of this kind, viz. that they are less liable than others to be injured by the sea. The town of Deal, as far as we are able to judge, except it may be the sea's sinking a little from it, is in much the same condition in which it ever was, even from the earliest accounts. The learned Dr Halley has proved, *Miscellanea Curiosa*, vol. iii. p. 426. that Julius Cæsar landed here, August 26th, the year before the coming of Christ 55.—The great conveniency of landing has been of infinite service to the place: so that it is large and populous, divided into the upper and lower towns, adorned with many fair buildings, and is in effect the principal place in the Downs.

DEAN, an ecclesiastical dignitary in cathedral and collegiate churches, and head of the chapter.

Rural DEAN, called also *Arch-presbyter*, originally exercised jurisdiction over ten churches in the country, and afterwards became only the bishop's substitute, to grant

Deal,
Dean.

† See farther the article *Dumbness*.

Dean
||
Death.

grant letters of administration, probate of wills, &c.; to convocate the clergy; and to signify to them sometimes by letter the bishop's will, and to give induction to the archdeacon. Their office is not lost in that of the archdeacons and chancellors.

DEAN of a Monastery, was a superior established under the abbot, to ease him in taking care of ten monks; whence he was called *decanus*.

DEAN and Chapter, are the council of the bishop, to assist him with their advice in affairs of religion, and also in the temporal concerns of his see. When the rest of the clergy were settled in the several parishes of each diocese, these were reserved for the celebration of divine service in the bishop's own cathedral; and the chief of them, who presided over the rest, obtained the name of *decanus* or *dean*, being probably at first appointed to superintend ten canons or prebendaries.

All ancient deans are elected by the chapter by *conge de lire* from the king, and letters missive of recommendation, in the same manner as bishops: but in those chapters that were founded by Henry VIII. out of the spoils of the dissolved monasteries, the deanery is donative, and the installation merely by the king's letters patent. The chapter, consisting of canons or prebendaries, are sometimes appointed by the king, sometimes by the bishop, and sometimes elected by each other.

The dean and chapter are the nominal electors of a bishop. The bishop is their ordinary and immediate superior; and has, generally speaking, the power of visiting them, and correcting their excesses and enormities. They had also a check on the bishop at common law; for till the statute 32 Hen. VIII. c. 28. his grant or lease would not have bound his successors, unless confirmed by the dean and chapter.

DEAN of Guild. See *LAW Index*.

DEANERY, the office of a *DEAN*.—Deaneries and prebends may become void like a bishopric, by death, by deprivation, or by resignation either to the king or bishop. If a dean, prebendary, or other spiritual person, he made a bishop, all the preferments of which he was before possessed are void; and the king may present to them in right of his prerogative royal. But they are not void by the election, but only by the consecration.

DEATH, is generally considered as the separation of the soul from the body; in which sense it stands opposed to life, which consists in the union thereof.

Physicians usually define death by a total stoppage of the circulation of the blood, and a cessation of the animal and vital functions consequent thereon; as respiration, sensation, &c.

An animal body, by the actions inseparable from life, undergoes a continual change. Its smallest fibres become rigid; its minute vessels grow into solid fibres no longer pervious to the fluids; its greater vessels grow hard and narrow; and every thing becomes contracted, closed, and bound up; whence the dryness, immobility, and extenuation, observed in old age. By such means the offices of the minuter vessels are destroyed; the humours stagnate, harden, and at length coalesce with the solids. Thus are the subtlest fluids in the body intercepted and lost, the concoction weakened, and the reparation prevented; only the coarser juices continue to run slowly through the greater ves-

sels, to the preservation of life, after the animal functions are destroyed. At length, in the process of these changes, death itself becomes inevitable, as the necessary consequence of life. But it is rare that life is thus long protracted, or that death succeeds merely from the decays and impairment of old age. Diseases, a long and horrid train, cut the work short.

The signs of death are in many cases very uncertain. If we consult what Winslow or Bruchier have said on this subject, we shall be convinced, that between life and death the shade is so very undistinguishable, that even all the powers of art can scarcely determine where the one ends and the other begins. The colour of the visage, the warmth of the body, and suppleness of the joints, are but uncertain signs of life still subsisting; while, on the contrary, the paleness of the complexion, the coldness of the body, the stiffness of the extremities, the cessation of all motion, and the total insensibility of the parts, are but uncertain marks of death begun. In the same manner also, with regard to the pulse and breathing; these motions are so often kept under, that it is impossible to perceive them. By bringing a looking-glass near to the mouth of the person supposed to be dead, people often expect to find whether he breathes or not. But this is a very uncertain experiment; the glass is frequently sullied by the vapour of the dead man's body; and often the person is still alive, though the glass is no way tarnished. In the same manner, neither burning nor scarifying, neither noises in the ears nor pungent spirits applied to the nostrils, give certain signs of the discontinuance of life; and there are many instances of persons who have endured them all, and afterwards recovered without any external assistance, to the astonishment of the spectators. This ought to be a caution against hasty burials, especially in cases of sudden death, drowning, &c.

DEATH, in *Law*. In law, there is a natural death and civil death: natural, where nature itself expires; civil, where a person is not actually dead, but adjudged so by law. Thus, if any person, for whose life an estate is granted, remains beyond sea, or is otherwise absent, seven years, and no proof made of his being alive, he shall be accounted naturally dead.

Brothers of DEATH, a denomination usually given to the religious of the order of St Paul, the first hermit. They are called *brothers of death*, *fratres à morte*, on account of the figure of a death's head which they were always to have with them, in order to keep perpetually before them the thoughts of death. This order, by its constitutions made in 1620, does not seem to have been established long before Pope Paul V. Louis XIII. in 1621, permitted them to settle in France. The order was probably suppressed by Pope Urban VIII.

Law of DEATH-Bed. See *LAW Index*.

DEATH-Watch, in *Natural History*, a little insect famous for a ticking noise, like the beat of a watch, which the vulgar have long taken for a presage of death in the family where it is heard: whence it is also called *pediculus fatidicus*, *mortifaga*, *pulsatorius*, &c.

There are two kinds of death-watches. Of the first we have a good account in the *Phil. Trans.* by Mr. Allen. It is a small beetle, 5-16ths of an inch long, of a dark brown colour, spotted; having pellucid wings under

Death-
watch.

under the vagina, a large cap or helmet on the head, and two antennæ proceeding from beneath the eyes, and doing the office of proboscides. The part it beats withal, he observed, was the extreme edge of the face, which he chooses to call the upper-lip, the mouth being protracted by this bony part, and lying underneath out of view.

This account is confirmed by Dr Derham; with this difference, that instead of ticking with the upper lip, he observed the insect to draw back its mouth, and beat with its forehead. That author had two death-watches, a male and a female, which he kept alive in a box several months; and could bring one of them to beat whenever he pleased, by imitating its beating. By this ticking noise he could frequently invite the male to get up upon the other in the way of coition. When the male found he got up in vain, he would get off again, beat very eagerly, and then up again: Whence the ingenious author concludes those pulsations to be the way whereby these insects woo one another, and find out and invite each other to copulation.

The second kind of death-watch is an insect in appearance quite different from the first. The former only beats seven or eight strokes at a time, and quicker; the latter will beat some hours together without intermission; and his strokes are more leisurely, and like the beat of a watch. This latter is a small grayish insect, much like a louse when viewed with the naked eye.

It is very common in all parts of the house in the summer-months: it is very nimble in running to shelter, and shy of beating when disturbed; but will beat very freely before you, and also answer the beating, if you can view it without giving it disturbance, or shaking the place where it lies, &c. The author cannot say whether they beat in any other thing, but he never heard their noise except in or near paper. As to their noise, the same person is in doubt whether it be made by their heads, or rather snouts, against the paper; or whether it be not made after some such manner as grasshoppers and crickets make their noise. He inclines to the former opinion. The reason of his doubt is, that he observed the animal's body to shake and give a jerk at every beat, but could scarce perceive any part of its body to touch the paper. But its body is so small and near the paper, and its motion in ticking so quick, that he thinks it might be, yet he not perceive it. The ticking, as in the other, he judges to be a wooing act; as having observed another, after much beating, come and make offers to the beating insect, who, after some offers, left off beating, and got upon the back of the other. When they were joined, he left off again; and they continued some hours joined tail to tail, like dog and bitch in coition. Whether this insect changes its shape, and becomes another animal or not, he cannot say; though he has some cause to suspect that it becomes a sort of fly. It is at first a minute white egg, much smaller than the nits of lice; though the insect is near as big as a louse. In March it is hatched, and creeps about with its shell on. When it first leaves its shell, it is even smaller than its egg; though that be scarce discernible without a microscope. In this state it is perfectly like the mites in cheese. From the mite-state they grow gra-

VOL. VII. Part I.

dually to their mature perfect state. When they become like the old ones, they are at first very small, but run about much more swiftly than before.

DEBENTURE, a term of trade used at the customhouse for a kind of certificate signed by the officers of the customs, which entitles a merchant exporting goods to the receipt of a bounty or draw-back. All merchandises that are designed to be taken on board for that voyage being entered and shipped, and the ship being regularly cleared out, and sailed out of port on her intended voyage, debentures may be made out from the exporter's entries, in order to obtain the draw-backs, allowances, bounties, or premiums; which debentures for foreign goods are to be paid within one month after demand. And in making out these debentures, it must be observed, that every piece of vellum, parchment, or paper, containing any debenture for drawing back customs or duties, must, before writing, be stamped, and pay a duty of 8d.

The forms of debentures vary according to the merchandise exported. In the execution of debentures for tobacco, it must be particularly observed, 1. That debentures for the same quantity may be made on one or more parchments. 2. That the exporter's oath must be printed, specifying whether he acts for himself or on commission. 3. If exported to any other foreign ports than Ireland, the word *Ireland* must be added to the oath after *Great Britain*. 4. That as no tobacco may be consumed on board of ships of war in Europe but what has paid full duties, and been manufactured in Great Britain, no drawback is to be allowed for tobacco exported in any man of war. 5. That the eight pounds per hoghead of 350 pounds, or more, allowed for draught at importation, must not be deducted on exportation. 6. That debentures for tobacco exported to Ireland must not be paid till a certificate be produced, testifying the landing thereof. 7. That no persons may swear to the exportation but such as are permitted to swear to debentures for other goods. In debentures for all other foreign goods, no person may be admitted to swear to the exportation but the true exporter, either as a proprietor, or who, being employed by commission, is concerned in the direction of the voyage. All kinds of debentures, before delivered or paid to the exporters, are entered into a separate book kept for that purpose by the collector and comptroller of the customs.

DEBITA FUNDI. See *LAW INDEX*.

DEBITA Fructuum. See *LAW INDEX*.

DEBILITY, among physicians, a relaxation of the solids, occasioning oftentimes weaknesses and faintings.

DEBIR, in *Ancient Geography*, a sacerdotal city of Palestine, near Hebron; but neither distance, nor point of the compass on which it lies, can be determined. It was anciently called *Kariath-sepher* or *Kirjath-sepher*, and *Kirjath-sanna* (Joshua).—Another *Debir* in the tribe of Gad, beyond Jordan.

DEBRECHEN, a town of Upper Hungary, about 77 miles east of Buda. E. Long. 21. 10. N. Lat. 47. 45.

DEBRUIZED, in *Heraldry*, a term peculiar to the English, by which is intimated the grievous restraint of any animal, debarred of its natural freedom, by any of the ordinaries being laid over it.

O

DEBT,

Debenture
Debruized.

Debt
||
Decanus.

DEBT, in *Law*, any thing due to another, whether it be money, goods, or services; or the action brought for recovering the same.

National DEBT. See *FUNDS* and *NATIONAL DEBT*.

DEBTOR, a person who owes any thing to another; in contradistinction to creditor, which is he to whom the debt is owing.

DEBTOR, in merchants accounts. See *BOOK-KEEPING*.

DECADE, a word used by some old writers for the number ten, and *decades* for an enumeration by tens. The word is formed from the Latin *decas*, which is derived from a Greek word of the same import. The word has been more peculiarly appropriated to the number of books, q. d. *decades*, into which the Roman History of Titus Livius is divided. Hence also came *decadal* arithmetic, the *Decameron* of Boccacio, &c.

DECAGON, in *Geometry*, a plain figure with ten sides and ten angles.

DECAGYNIA (from *δεκα*, *ten*, and *γυνή*, a *woman*), the name of an order, or secondary division, in the class *decandria*, of the sexual method, consisting of plants whose flowers are furnished with ten stamina and the same number of styles; which last are considered by Linnaeus and the sexualists as the female organs of generation in plants. *Neurada* and *American nightshade* furnish examples.

DECALOGUE, the ten precepts or commandments delivered by God to Moses, after engraving them on two tables of stone.

The Jews, by way of excellence, call these commandments the *ten words*, from whence they had afterwards the name of *decalogue*: but it is to be observed, that they joined the first and second into one, and divided the last into two. They understand that against stealing to relate to the stealing of men, or kidnapping; alleging, that the stealing one another's goods or property is forbidden in the last commandment.

The emperor Julian objected to the decalogue, that the precepts it contained (those only excepted which concern the worship of false gods, and the observation of the sabbath) were already so familiar to all nations, and so universally received, that they were unworthy, for that very reason, to be delivered, by so great a legislator, to so peculiar a people. The church of Rome has struck the second commandment quite out of the decalogue; and to make their number complete, hath split the tenth into two: the reason of which may be easily conceived.

DECAN, a kingdom of Asia, in the peninsula on this side the Ganges, bounded on the south by the kingdom of *Bisnagar*, on the west by the ocean, on the north by *Mogulistan*, and on the east by the mountains which separate it from *Golconda*.

DECANDRIA (*δεκα*, *ten*, and *ανδρ*, a *husband*), Linnaeus's tenth class, comprehending those hermaphrodite plants which bear flowers with ten stamina. See *BOTANY Index*.

DECANTATION, among chemists, &c. the gently pouring off a liquor from its fæces, by inclining the lip or canthus of the vessel; whence the name.

DECANUS, in Roman antiquity, an officer who presided over the other ten officers, and was head of the *contubernium*, or serjeant of a file of soldiers.

DECAPOLIS, in *Ancient Geography*, a district beyond Jordan, almost all of it belonging to the half tribe of *Manasseh*; before the captivity, called *Bethsan*; but after occupied by the heathen, who could not be driven out. It comprised, as the name denotes, ten principal cities on the other side the Jordan, if we except *Scythopolis*, which stood on this side, but its territory on the other.

Decapolis
||
Decemviri.

DECAPROTI, *DECEMPRIMI*, in Roman antiquity, officers for gathering the tributes and taxes.

The *decaproti* were also obliged to pay for the dead, or to answer to the emperor for the quota parts of such as died out of their own estates.

DECASPERMUM, a genus of plants belonging to the *icofandria* class. See *BOTANY Index*.

DECASTYLE, in the ancient architecture, a building with an ordinance of ten columns in front, as the temple of *Jupiter Olympius* was.

DECEIT, in *Law*, a subtle trick or device, to which may be added all manner of craft and collusion, or underhand practice, used to defraud another, by any means whatever.

DECEMBER, the last month of the year, wherein the sun enters the tropic of *Capricorn*, and makes the winter solstice.

In *Romulus's* year, December was the 10th month, whence the name, viz. from *decem*, "ten:" for the Romans began their year in March.

The month of December was under the protection of *Vesta*. *Romulus* assigned it 30 days, *Numa* reduced it to 29, which *Julius Cæsar* increased to 31.

Under the reign of *Commodus*, this month was called, by way of flattery, *Amazonius*, in honour of a courtesan whom that prince passionately loved, and had got painted like an Amazon: but it only kept the name during that emperor's life.

At the latter end of this month they had the *juveniles ludi*; and the country people kept the feast of the goddess *Vacuna* in the fields, having then gathered in their fruits and sown their corn; whence seems to be derived our popular festival called *harvest-home*.

DECEMPAGI, in *Ancient Geography*, a town of *Belgica*: Now *Dieuse*, in *Lorraine*, on the rivulet *Seille* or *Selna*, near the lake *Lindre*, about seven German miles to the north-east of *Nancy*.

DECEMPEDA, *δεκαπους*, *ten-feet rod*, an instrument used by the ancients in measuring.

The *decempeda* was a rule or rod divided into ten feet; whence its name, from *decem* "ten," and *pes pedis*, "foot." The foot was subdivided into twelve inches, and each inch into ten digits. The *decempeda* was used both in measuring of land, like the chain among us; and by architects to give the proper dimensions and proportions to the parts of their buildings, which use it still retains. *Horace*, lib. ii. od. 15. blaming the magnificence and delicacy of the buildings of his time, observes that it was otherwise in the times of *Romulus* and *Cato*; that in the houses of private persons there were not then known any porticoes measured out with the *decempeda*, nor turned to the north to take the cool air.

DECEMVIRI, ten magistrates of absolute authority among the Romans. The privileges of the patricians raised dissatisfaction among the plebeians; who, though freed from the power of the *Tarquins*, still saw that

Decem-
viri,
Decennalia. that the administration of justice depended upon the will and caprice of their superiors, without any written statute to direct them, and convince them that they were governed with equity and impartiality. The tribunes complained to the senate, and demanded that a code of laws might be framed for the use and benefit of the Roman people. This petition was complied with; and three ambassadors were sent to Athens and all the other Grecian states, to collect the laws of Solon and of all the other celebrated legislators of Greece. Upon the return of the commissioners it was universally agreed, that ten new magistrates called *Decemviri* should be elected from the senate to put the project into execution. Their power was absolute, all other offices ceased after their election, and they presided over the city with regal authority. They were invested with the badges of the consul, in the enjoyment of which they succeeded by turns, and only one was preceded by the fasces, and had the power of assembling the senate and confirming decrees. The first decemvirs were Appius Claudius, T. Genutius, P. Sextus, Sp. Veturius, C. Julius, A. Manlius, Ser. Sulpitius, Pluriantius, T. Romulus, Sp. Posthumius, in the year of Rome 302. Under them the laws, which had been exposed to public view, that every citizen might speak his sentiments, were publicly approved of as constitutional, and ratified by the priests and augurs in the most solemn and religious manner. They were ten in number, and were engraved on tables of brass; two were afterwards added, and they were called the laws of the twelve tables, *leges duodecim tabularum*, and *leges decemvirales*. The decemviral power, which was beheld by all ranks of people with the greatest satisfaction, was continued; but in the third year after their creation the decemvirs became odious on account of their tyranny, and the attempt of Ap. Claudius to ravish Virginia totally abolished that office. The people were so exasperated against them, that they demanded them from the senate to burn them alive. Consuls were again appointed, and tranquillity re-established in the state. There were other officers in Rome called decemvirs, who were originally appointed in the absence of the prætor to administer justice. Their appointment became afterwards necessary, and they generally assisted at sales, called *substationes*, because a spear, *hasta*, was fixed at the door of the place where the goods were exposed to sale. They were called *decemviri litibus judicandis*. The officers whom Tarquin appointed to guard the Sibylline books were also called *decemviri*. They were originally two in number, called *duumviri*, till the year of Rome 388, when their number was increased to ten, five of which were chosen from the plebeians and five from the patricians. Sylla increased their number to fifteen, called *quindemvirs*.

DECENNALIA, ancient Roman festivals, celebrated by the emperors every tenth year of their reign, with sacrifices, games, and largesses for the people. The emperor Augustus first instituted these solemnities, in which he was imitated by his successors. At the same time the people offered up vows for the emperor, and for the perpetuity of the empire; which were therefore called *vota decennalia*. Augustus's view in establishing the decennalia was to preserve the empire and the sovereign power without offence or restraint to the

people. For during the celebration of this feast, that prince used to surrender up all his authority into the hands of the people; who filled with joy, and charmed with the goodness of Augustus, immediately delivered it him back again.

DECHALES, CLAUDIUS FRANCIS MILLIET, an excellent mathematician, mechanic, and astronomer, descended from a noble family, and born at Chamberry in 1611. His principal performances are an edition of Euclid's elements of geometry, in which the unserviceable propositions are rejected, and the uses of those retained annexed; a discourse on fortification; and another on navigation. These with others have been collected first in 3 vols folio, and afterwards in 4, under the title of *Mundus Mathematicus*: being indeed a complete course of mathematics. He died in 1678, professor of mathematics in the university of Turin.

DECIATES, or *Deciatii*, in *Ancient Geography*, a people of Gallia Narbonensis, next the borders of Italy, on the Mediterranean. Now the diocese of Grace and Antibes. *Deciatum oppidum*, was a town situated between Antibes and Nice.

DECIDUOUS, an appellation chiefly used in respect of plants: thus, the calyx or cup of a flower is said to be *deciduous*, when it falls along with the flower-petals; and, on the contrary, it is called *permanent*, when it remains after they are fallen. Again, deciduous leaves are those which fall in autumn; in contradistinction to those of the evergreens, which remain all the winter. See DEFOLIATION.

DECIL, in *Astronomy*, an aspect or position of two planets, when they are distant from each other a tenth part of the zodiac.

DECIMAL ARITHMETIC, the art of computing by decimal fractions. See ARITHMETIC.

CIRCULATING DECIMALS, called also *recurring* or *repeating decimals*, are those in which a figure or several figures are continually repeated. They are distinguished into *single* and *multiple*, and these again into *pure* and *mixed*.

A *pure single* circulate is that in which one figure only is repeated; as $\cdot 222$, &c. and is marked thus $\cdot 2$.

A *pure multiple* circulate is that in which several figures are continually repeated; as $\cdot 232323$, &c. marked $\cdot 23$; and $\cdot 524524$, &c. marked $\cdot 524$.

A *mixed single* circulate is that which consists of a terminate part, and a single repeating figure; as $4\cdot 222$, &c. or $4\cdot 2$. And

A *mixed multiple* circulate is that which contains a terminate part with several repeating figures; as $45\cdot 524$.

That part of the circulate which repeats is called the *repetend*; and the whole repetend, supposed infinitely continued, is equal to a vulgar fraction, whose numerator is the repeating number or figures, and its denominator the same number of nines: so $\cdot 2$ is $\frac{2}{9}$; and $\cdot 23$ is $\frac{23}{99}$; and $\cdot 524$ is $\frac{524}{999}$.

Dr Wallis, it appears, was the first who distinctly considered or treated of infinite circulating decimals, as he himself informs us in his *Treatise of Infinites*. Since his time many other authors have treated on this part of arithmetic; the principal of these, however, to whom the art is mostly indebted, are Messrs Brown, Cunn,

Dechales
||
Decimals.

Decimation Cunn, Martin, Emerson, Malcolm, Donn, and Henry Clarke; in whose writings the nature and practice of this art may be fully seen, especially in the last-mentioned ingenious author. *Hutton's Math. Dict.*

DECIMATION, a punishment inflicted by the Romans, on such soldiers as quitted their posts, or behaved themselves cowardly in the field. The names of the guilty were put into an urn or helmet, and as many were drawn out as made the tenth part of the whole number, and those were put to the sword, and the others saved. This was called *decimare*; a word of the ancient Roman militia, who, to punish whole legions when they had failed in their duty, made every tenth soldier draw lots, and put him to death for an example to the others.

As the Romans had their *decimatio*, they had also the *vicefimatio*, and even *centefimatio*, when only the 20th or 100th man suffered by lot.

DECIPHERING, the art of finding the alphabet of a cipher. For the art both of CIPHERING and DECIPHERING, see the article CIPHER.

DECIUS MUS, a celebrated Roman consul, who, after many glorious exploits, devoted himself to the gods manes for the safety of his country in a battle against the Latins, about 340 years before the Augustan age. His son Decius imitated his example, and devoted himself in like manner in his fourth consulship, when fighting against the Gauls and Samnites. His grandson also did the same in the war against Pyrrhus and the Tarentines. This action of devoting one's self was of infinite service to the state. The soldiers were animated by the example, and induced to follow with intrepidity a commander who, arrayed in an unusual dress, and addressing himself to the gods with solemn invocation, rushed into the thickest part of the enemy to meet his fate.

DECIUS, *Cn. Metius*, *Q. Trajanus*, a native of Pannonia, sent by the emperor Philip to appease a sedition in Mœsia. Instead of obeying his master's command, he assumed the imperial purple, and soon after marched against him, and at his death became the only emperor. He signalized himself against the Persians; and when he marched against the Goths, he pushed his horse into a deep marsh, from which he could not extricate himself, and he perished with all his army by the darts of the barbarians, A. D. 251, after a reign of two years.

DECK of a SHIP (from *decken*, Dan. to cover); the planked floors of a ship, which connect the sides together, and serve as different platforms to support the artillery and lodge the men, as also to preserve the cargo from the sea in merchant vessels. As all ships are broader on the lower deck than on the next above it, and as the cannon thereof are always heaviest, it is necessary that the frame of it should be much stronger than that of the others; and for the same reason the second or middle deck ought to be stronger than the upper deck or forecastle.

Ships of the first and second rates are furnished with three whole decks, reaching from the stem to the stern, besides a forecastle and a quarter-deck, which extends from the stern to the mainmast; between which and the forecastle a vacancy is left in the middle, opening to the upper deck, and forming what is called the

waist. There is yet another deck above the hinder or aftmost part of the quarter-deck, called the *poop*, which also serves as a roof for the captain's cabin or couch.

The inferior ships of the line of battle are equipped with two decks and a half; and frigates, sloops, &c. with one gun-deck and a half, with a spar-deck below to lodge the crew.

The decks are formed and sustained by the beams, the clamps, the water-ways, the carlings, the ledges, the knees, and two rows of small pillars called *stanchions*, &c. See those articles.

That the figure of the deck, together with its corresponding parts, may be more clearly understood, we have exhibited a plan of the lower-deck of a 74 gun ship in Plate CLXIX. And as both sides of the deck are exactly similar, the pieces by which it is supported appear on one side, and on the other side the planks of the floor of which it is composed, as laid upon those upper pieces.

A, the principal or main hatch-way.

B, the stern-post.

C, the stern.

D, the beams, composed of three pieces, as exhibited by D, in one of which the dotted lines show the arrangement of one of the beams under the other side of the deck.

E, part of the vertical or hanging knees.

F, the horizontal or lodging knees, which fasten the beams to the sides.

G, the carlings, ranging fore and aft, from one beam to another.

H, the gun-ports.

I, the pump-ducts, being large wooden tubes, which return the water from the pumps into the sea.

K, the spurs of the beams, being curved pieces of timber serving as half-beams to support the decks, where a whole beam cannot be placed on account of the hatchways.

L, the wing-transom, which is bolted by the middle to the stern-post, and whose ends rest upon the fashion-pieces.

M, the bulk-head or partition, which incloses the manger, and prevents the water which enters at the hawse-holes from running aft between decks.

NN, the fore hatchway.

OO, the after hatchway.

P, the drum-head of the great capstern.

P p, the drum-head of the main capstern.

Q, the wing-transom knee.

R, one of the breast-hooks under the gun-deck.

S, the breast-hook of the gun-deck.

TT, the station of the chain-pumps.

V, the breadth and thickness of the timbers at the height of the gun-deck.

UU, scuttles leading to the gunner's store-room, and the bread-room.

W, the station of the fore-mast.

X, the station of the main-mast.

Y, the station of the mizen-mast.

Z, the ring-bolts of the decks, used to retain the cannon whilst charging.

a a, The ring-bolts of the sides whereon the tackles are hooked that secure the cannon at sea.

Deck,
Declama-
tion.

caad, The water-ways, through which the scupper holes are pierced, to carry the water off from the deck into the sea.

bb, Plan of the foremost and aftmost cable bits, with their cross pieces *gg*, and their standards *ee*.

Thus we have represented on one side all the pieces which sustain the deck with its cannon; and on the other side the deck itself, with a tier of 32 pounders planted in battery thereon. In order also to show the use of the breeching and train-tackle, one of the guns is drawn in as ready for charging.

The number of beams by which the decks of ships are supported, is often very different, according to the practice of different countries; the strength of the timber of which the beams are framed; and the services for which the ship is calculated.

As the deck which contains the train of a fire-ship is furnished with an equipage peculiar to itself, the whole apparatus is particularly described in the article *FIRE-SHIP*.

Flush-DECK, implies a continued floor laid from stem to stern, upon one line, without any stops or intervals.

Half-DECK, a space under the quarter-deck of a ship of war, contained between the foremost bulk-head of the steerage and the fore-part of the quarter-deck. In the colliers of Northumberland the steerage itself is called the *half-deck*, and is usually the habitation of the crew.

DECLAMATION, a speech made in public, in the tone and manner of an oration, uniting the expression of action to the propriety of pronunciation, in order to give the sentiment its full impression upon the mind. According to the manners and customs of the present age, public harangues are made only, 1. In the pulpit. 2. In the senate, in council, or other public assembly. 3. By public professors. 4. On the theatre.

I. With regard to the declamation of the pulpit, the dignity and sanctity of the place, and the importance of the subject, require the preacher to exert the utmost powers of his voice to produce a pronunciation that is perfectly distinct and harmonious, and that he observe a deportment and action which is expressive and graceful. No man, therefore, who is destitute of a voice, should ascend the pulpit, and there act the part of a pantomime before his audience. The preacher should not, however, roar like a common crier, and rend the ear with a voice of thunder; for such kind of declamation is not only without meaning and without persuasion, but highly incongruous with the meek and gentle expressions of the gospel. He should likewise take particular care to avoid a monotony; his voice should rise from the beginning, as it were by degrees, and its greatest strength should be exerted in the application. Each inflexion of the voice should be adapted to the phrase, and to the meaning of the words; and each remarkable expression should have its peculiar inflexion. The dogmatic requires a plain, uniform tone of voice only; and the menaces of the gospel demand a greater force than do its promises and rewards; but the latter should not be pronounced in the soft tone of a flute, nor the former with the loud sound of a trumpet. The voice should still retain its natural tone in all its various inflexions. Happy is that preacher, to whom

nature has given a voice that is at once strong, flexible, and harmonious.

An air of complacency and benevolence, as well as devotion, should be constantly visible in the countenance of the preacher. But every appearance of affection must be carefully avoided: for nothing is so disgusting to an audience as even the semblance of dissimulation. Eyes constantly rolling, turned towards heaven, and streaming with tears, rather denote a hypocrite, than a man possessed of the real spirit of religion, and that feels the true import of what he preaches. An air of affected devotion infallibly destroys the efficacy of all that the preacher can say, however just and important it may be. On the other hand, he must avoid every appearance of mirth or raillery, or of that cold unfeeling manner which is so apt to freeze the hearts of his hearers.

The body should be in general erect, and in a natural and easy attitude. The perpetual movement, or contortion of the body, has a ridiculous effect in the pulpit, and makes the figure of a preacher and a harlequin much too similar. But, on the other hand, he ought not to remain constantly upright and motionless like a speaking statue.

The motions of the hands give a strong expression to a discourse; but they should be constantly decent, grave, noble, and expressive. The preacher, who is incessantly in action, who is perpetually clapping his hands, or who menaces with a clenched fist, or counts his arguments on his fingers, will only excite mirth among his auditory. In a word, declamation is an art that the sacred orator should study with the utmost assiduity. The design of a sermon is to convince, to affect, and to persuade. The voice, the countenance, and the action, which are to produce this triple effect, are therefore the objects to which the preacher should particularly apply himself.

II. The declamation of a minister or statesman in the senate, in council, or other public assembly, is of a more unconfined nature. To persuade, to move the passions, and gain an ascendancy in a public assembly, the orator should himself feel the force of what he says, and the declamation should only express that internal sensation. But nothing should be carried to excess. A suavity in the tone of voice, a dignity of deportment, a graceful action, and a certain tranquillity of countenance, should constantly accompany the statesman when he speaks in public, even when he is most earnestly engaged in debate, or when he is addressing his sovereign in person. A pleasing tone of voice and a distinct pronunciation, prejudice the hearers greatly in the speaker's favour. A young man may improve these to a surprising degree. Demosthenes, who had a natural impediment in his speech, was accustomed to go to the sea-shore, and partly filling his mouth with pebbles, he declaimed with a loud voice. The stones by degrees gave a volubility to his tongue, and the roaring of the waves, reconciled him insensibly to the noise of the multitude.

III. The principal object of a public professor is the instruction of the studious youth; for which purpose he is to convince and persuade. Every tone of voice, every expression of the countenance, or action of the body, which can produce this effect by enforcing the words, should therefore be employed by those who are

Declama-
tion.

Declama-
tion.

to teach the science. There is, moreover, one very essential reflection which every professor ought to make, and which is, that the chair from which he harangues is surrounded by young students, naturally possessed with vivacity, not unfrequently ludicrous; and for the most part previously instructed in the preparatory sciences. They are therefore constantly inclined to criticise, to jest, and to ridicule; for which reason, the professor should endeavour to inspire them with respect and attention, by a grave, commanding, and venerable countenance, and carefully avoid all appearance of grimace in his action, and every kind of affectation in his discourse, that he may not afford the least opportunity of pleasantry.

* *De Musica*, lib. i.

IV. We are now come to *theatric declamation*. 1. This was very different among the ancients from what it is, and ought to be, with us, from the nature of the thing itself, and from the difference of circumstances. Numberless passages in Quintilian, and other ancient historians, critics, grammarians, and commentators, evidently prove, that the ancient dramatic declamation was subservient to the rules of the musical rhythm; and by this, according to Aristides*, their action, as well as recital, was regulated. But to explain this seeming paradox, it will be necessary to make here some preliminary remarks. The ancients gave a much more extensive signification than we do to the word *music* (*musica*), which they derived from the muses, or at least from some of them. It is for this reason that the same Aristides and Quintilian define it to be "An art that teaches all that relates to the use of the voice, and the manner of performing all the motions of the body with grace." *Ars decoris in vocibus et motibus*. Therefore poetry, declamation, dancing, pantomimes, and many other gestures and exercises, were subservient to this art.

2. That part of general music which taught the art of declamation and gesture according to the rules of an established method (and which we perform by instinct, or at most by the aid of common sense), was distinguished by the name *hypocritic music*: and this musical art was called by the Greeks *orchesis*; and by the Romans *saltatio*. It was, however, so far from being an advantage to the ancients to have had this art, which we have not, that it was, on the contrary, a mark of great imperfection. For, in the first place, it was an instance of high absurdity to represent a tragedy, or comedy, before an audience of twenty thousand people, the far greatest part of whom could neither hear nor see what passed to any good purpose, unless they were possessed of organs which we have not. The theatres of London and Paris may conveniently contain about a thousand persons; and that is found sufficient in the most populous cities, where there are several places of entertainment on the same day, and where the people are reasonable enough to succeed each other in their diversions. As the feature of the face could not be distinguished at so great a distance, and still less the alteration of countenance in order to represent the different passions, they were obliged to have recourse to *masks*; a wretched childish invention, that destroyed all the strength and variety of expression. Their action became extravagant; and at the same time subservient to a regular mechanism, which prevented all the refinement, and all the pleasure of surprise, in

the performance; and must have had an effect horribly disagreeable to those who were placed near the stage.

3. The egregious imperfection of their language likewise, which consisted of syllables long and short, whose duration was determined by a set measure of time, and their manner of tuning these syllables, after the method of the *orchesis* of the Greeks, was another disadvantage. For by this means they determined by notes or characters placed after the long and short syllables, not only the nature, but the duration, of each action. Now, nothing could be more affected, more constrained and disgusting, than such a method of declaiming. How far superior in this respect are the moderns, who consult nature alone in their theatric declamation; who can make the audience hear each sigh; who can accompany it with a proper attitude; who can incessantly vary their action; who can seize the lucky moment, and make the countenance fully express the sensations of the mind! Nature does all here; and art, infinitely inferior to nature, did all among the ancients. Modern declamation cannot be subservient to a musical rhythmus, seeing we speak rapidly, and without affectation. Our actors learn their art without art, from nature itself, assisted by reflection; and they arrive at a degree of excellence infinitely greater than that of the ancients, by a method far more simple, and by efforts incomparably more easy.

4. We do not, moreover, precisely know what the theatric declamation of the ancients was; nor what were the musical instruments which accompanied that declamation. The title to the Eunuch of Terence says, for example, "that Flaccus, the freedman of Claudius, made the music of that piece, in which he employed the two flutes, the right and the left." These flutes, it is likely, gave the tone to the actor, which must have had a very odd effect on the audience. Most of the ancient pieces have similar titles. They who would be particularly informed of the art of declaiming among the Greeks and Romans, may read to advantage the *Critical Reflections on Poetry and Painting* by the Abbé du Bos. The third part of that work consists entirely of learned researches and ingenious reflections on this silly practice of the ancients. But as this art has happily no place in modern declamation, and can at best serve only to make a parade of erudition, we shall say no more of it, but pass to matters of real utility.

5. We think there is good reason to believe, moreover, that the most polished nations of modern Europe do not accompany their discourses in general with so many gesticulations, as did the Greeks, the Romans, and other inhabitants of warm climates. They appear to have found the method of animating a discourse, and giving it an expression, by the simple inflections of the voice, and by the features of the countenance; which is far more decent, more just and rational, than all those contortions which perpetually derange the natural attitude of the body and its members, and give the speaker the air of a harlequin.

6. *Expression*, therefore, forms at once the essence and the end of declamation; and the means of producing it consists, in a pronunciation that is sonorous, distinct, and pleasing, supported by an action that is decent and proper to the subject. If the best dramatic poet has need of a good declaimer or actor to make

his

Declamation. his writings produce their proper effect, the actor has likewise need of a good poet to enable him to please and affect by the action; for it is to little purpose that he endeavours to charm his auditory by uniting, with nature, all the powers of art, if the poet has not furnished him with sentiments that are rational and affecting.

7. The actor, in studying his part before a large mirror, where he can see his whole figure, in order to determine the most proper expressions for every thought, should consult nature, and endeavour to imitate her. But, in this imitation, he should take care not to make too servile a copy. He has this to observe, in common with his colleagues, the masters in all the polite arts; The theatre is intended to exhibit an imitation of nature, and not nature itself. Tragedy and comedy form pictures of human life; but these pictures are also pieces of perspective, which require strokes somewhat stronger than nature, that they may be discerned at a distance. The actor is elevated to a considerable height from the ground; he is surrounded by scenery, he is separate from the audience by the orchestra, and he speaks in verse; all this is not natural; but the spectator is to accede to this necessary illusion, in order to promote his own pleasure, which would not be so great as it is were all these matters otherwise disposed. Declamation, therefore, should somewhat exceed, but never lose sight of, nature.

8. The tone of the actor's voice should be natural, but regulated by the extent of the theatre; sufficiently loud to be heard by all the audience, but not so violent as to rend their ears. A pure and graceful pronunciation, without any provincial accent, is likewise a great merit in an actor; and he should also habituate himself to speak in a manner perfectly distinct. It is a capital point in the pronouncing of verse, not to separate the two hemistichs, by resting too long on the *caesura* in the middle, or dwelling on the end of each hemistich: for, by so doing, the actor falls into a monotony, an insufferable uniformity of cadence, in a piece that consists of some thousand verses. The gradations of the voice demand also a very judicious observance. The speaker, who begins in a high tone, will find it very difficult to sustain it through the whole piece; and he, who clamours incessantly, will find his lungs fail him in those parts where the vehemence of passion requires the strongest efforts. If we may be allowed the expression, the strongest touches, the boldest figures, will not there stand out from the picture in a striking manner.

9. The deportment of an actor should be constantly graceful, decent, and proper to the character he represents. An old man has a different position of body from a young *petit-maitre*; an aged queen from a young princess; a noble gallant from a valet de chambre. A rational observance of nature, and an imitation of the best actors, are here the surest guides. The same may be said of the action of the hands, the theatric step, &c. An inanimated figure, a body in the position of a statue, and hands immoveable, are as displeasing in the scene, as a player whose incessant gesticulation resembles the action of a puppet.

10. Every actor who aspires to make his art something more than merely mechanical, will begin by enabling himself readily to repeat his part, that the

defect of his memory may not embarrass his action. When he is so far a master of it, he will make it the subject of serious reflection in his closet; endeavour to seize the true sense of the author; and to find out that expression of each sentiment and passion, which is the most natural, the most striking, and best adapted to the stage; and which he will cultivate by repeated essays, till he is able to render it in its full force.

DECLARATORY ACTION. See *LAW Index*.

DECLENSION, in *Grammar*, an inflection of nouns according to their divers cases; as nominative, genitive, dative, &c. See *GRAMMAR*.

DECLINATION, in *Astronomy*, the distance of any celestial object from the equinoctial, either northward or southward. It is either true or apparent, according as the real or apparent place of the object is considered. See *ASTRONOMY Index*.

DECLINATION of the *Sea Compass* or *Needle*, is its variation from the true meridian of any place.

DECLINATION of a *Plane* or *Wall*, in *Dialing*, is the horizontal arch contained between the plane and the prime vertical circle, if you reckon from east to west; or between the meridian and the plane, reckoning from north to south. Many ways are used for finding this declination: but the most easy and practicable is by a declinator. See *DECLINATOR*.

DECLINATOR, or DECLINATORY, an instrument chiefly used in practical dialing, for taking the declinations, inclinations, or reclinations of the planes on which the dials are to be delineated. See *DIALING*, N^o 24, 25.

DECLINATURE of *JUDGES*. See *LAW Index*.

DECLIVITY denotes the reverse of *ACCLIVITY*.

DECOCTION, usually signifies either the action of boiling a substance in water, or the water itself in which the substance has been boiled. It is only applicable to matters containing some principles soluble in water: such particularly are animal and vegetable matters. Decoction ought not to be used with such substances as contain any volatile principles, as they would be dissipated in the air during the process. But it may be safely used, nay even becomes necessary, when the matters to be treated are solid, and of a close and compact texture; because then the water could not extract its principles without a boiling heat. Most soft animal matters, as flesh, skin, tendons, may be conveniently boiled in water; because they contain no principle volatile with a boiling heat. Water extracts from them nothing but a gelatinous substance, and some oily parts which float on the surface of the water. All vegetable matters which are inodorous, and particularly those which are hard, as roots, barks, &c. are generally boiled, when an extraction of their principles by water is required.—To this rule, however, there are some exceptions. Peruvian bark, for instance, gives its strength to cold water better than to such as is boiling hot. Many other vegetables also have the same property of yielding less to boiling than to cold water. And therefore a general rule may be established, that decoction ought not to be employed but when absolutely necessary; that is, when the same principles, or the same quantities of those principles, cannot be obtained by an infusion, and that without heat, if it can be so done, considering that the proximate principles

Decollation
||
Decoy.

of vegetables are generally so delicate, and so susceptible of change and decomposition, that frequently the most gentle heat changes much their nature and properties.

DECOLLATION, **BEHEADING**, a term seldom used but in the phrase *decollation* of St John Baptist; which denotes a painting, wherein is represented the Baptist's head struck off from his trunk; or the feast held in honour of that martyr.

DECOMPOSITION, in *Chemistry*, usually signifies the disunion or separation of the constituent parts of bodies.—It differs from mere mechanical division; for when a body is chemically decomposed, the parts into which it is resolved are essentially different from the body itself: and though a mechanical force be applied to it ever so long, or with ever so much violence, the minutest particles into which the body may be reduced still retain their original nature.—Thus, for example, though we suppose nitre, or any other salt, to be reduced to ever so fine powder, each particle retains the nature of nitre, as much as the largest unpounded mass; but if sulphuric acid be applied, a decomposition takes place, and one of the component parts of the nitre, namely the nitric acid, rises in the form of fumes, which never could have been suspected to lie hid in the mild neutral salt.

DECORATION, in *Architecture*, any thing that adorns and enriches a building, church, triumphal arch, or the like, either without side or within.

The orders of architecture contribute greatly to the decoration; but then the several parts of those orders must have their just proportions, characters, and ornaments; otherwise the finest order will bring confusion rather than richness. See **ARCHITECTURE**.

Decorations in churches are paintings, vases, festoons, &c. occasionally applied to the walls; and with so much conduct and discretion, as not to take off any thing from the form of the architecture: as is much practised in Italy at the solemn feasts.

DECORATION is more particularly applied to the scenes of theatres.

In operas, and other theatrical performances, the decorations must be frequently changed conformably to the subject.

The ancients had two kinds of decorations for their theatres: the first, called *versatiles*, having three sides, or faces, which were turned successively to the spectators: the other called *ductiles*, showing a new decoration by drawing or sliding another before it. This latter sort is still used, and apparently with much greater success than among the ancients, who were obliged to draw a curtain whenever they made a change in the decoration; whereas on our stage the change is made in a moment, and almost without being perceived.

DECORUM, in *Architecture*, is the suitableness of a building, and the several parts and ornaments thereof, to the station and occasion.

DECOUPLE, in *Heraldry*, the same as uncoupled; thus a chevron decouple is a chevron wanting so much of it towards the point, that the two ends stand at a distance from one another, being parted and uncoupled.

DECOY, in naval affairs, a stratagem employed by a ship of war to betray a vessel of inferior force into

an uncautious pursuit, till she has drawn her within the range of her cannon, or what is called within *gunshot*. It is usually performed by painting the stern and sides in such a manner as to disguise the ship, and represent her either much smaller and of inferior force, or as a friend to the hostile vessel, which she endeavours to ensnare, by assuming the emblems and ornaments of the nation to which the stranger is supposed to belong. When she has thus provoked the adversary to chase, in hopes of acquiring a prize, she continues the decoy, by spreading a great sail, as endeavouring to escape; at the same time that her course is considerably retarded by an artful alteration of her trim till the enemy approaches. Decoying is also performed to elude the chase of a ship of a superior force in a dark night, by throwing out a lighted cask of pitch into the sea, which will burn for a considerable time and misguide the enemy. Immediately after the cask is thrown out, the ship changes her course, and may easily escape, if at any tolerable distance from the foe.

DECOR, among fowlers, a place made for catching wild-fowl. A decoy is generally made where there is a large pond surrounded with wood, and beyond that a marshy and uncultivated country: if the piece of water is not thus surrounded, it will be attended with the noise and other accidents which may be expected to frighten the wild-fowl from a quiet haunt, where they mean to sleep, during the day-time, in security. If these noises or disturbances are wilful, it hath been held that an action will lie against the disturber.—As soon as the evening sets in, the decoy rises (as they term it), and the wild fowl feed during the night. If the evening is still, the noise of their wings, during their flight is heard at a very great distance, and is a pleasing though rather melancholy sound. This rising of the decoy in the evening, is in Somersetshire called *radding*.

The decoy-ducks are fed with hempseed, which is thrown over the screens in small quantities, to bring them forwards into the pipes or canals, and to allure the wild fowl to follow, as this seed is so light as to float.

There are several *pipes*, as they are called, which lead up a narrow ditch that closes at last with a funnel-net. Over these pipes (which grow narrower from their first entrance) is a continued arch of netting suspended on hoops. It is necessary to have a pipe or ditch for almost every wind that can blow, as upon this circumstance it depends which pipe the fowl will take to; and the decoy man always keeps on the leeward side of the ducks, to prevent his effluvia reaching their sagacious nostrils. All along each pipe, at certain intervals, are placed screens made of reeds, which are so situated, that it is impossible the wild-fowl should see the decoy-man, before they have passed on towards the end of the pipe, where the purse-net is placed. The inducement to the wild-fowl to go up one of these pipes is, because the decoy-ducks trained to this lead the way, either after hearing the whistle of the decoy-man, or enticed by the hempseed; the latter will dive under water whilst the wild-fowl fly on, and are taken in the purse.

It often happens, however, that the wild-fowl are in such a state of sleepiness and dozing, that they will not follow the decoy-ducks. Use is then generally made

Decoy.

Decoy ||
Decreet-
Arbitral. made of a dog, who is taught his lesson: he passes backwards and forwards between the reed skreens (in which are little holes, both for the decoy-man to see, and the little dog to pass through); this attracts the eye of the wild-fowl, who, not choosing to be interrupted, advance towards the small and contemptible animal, that they may drive him away. The dog all the time, by the direction of the decoy-man, plays among the skreens of reeds, nearer and nearer the purse-net; till at last, perhaps, the decoy-man appears behind a skreen, and the wild-fowl not daring to pass by him in return, nor being able to escape upwards on account of the net-covering, rush on into the purse-net. Sometimes the dog will not attract their attention, if a red handkerchief, or something very singular, is not put about him.

The general season for catching fowls in decoys, is from the latter end of October till February: the taking of them earlier is prohibited by an act 10 Geo. II. c. 32. which forbids it from June 1st to October 1st, under the penalty of five shillings for each bird destroyed within that space.

The Lincolnshire decoys are commonly set at a certain annual rent, from 5 to 20 pounds a-year: and there is one in Somersetshire that pays 30l. The former contribute principally to supply the markets in London. Amazing numbers of ducks, widgeons, and teal, are taken: by an account sent us* of the number caught a few winters past, in one season, and in only ten decoys, in the neighbourhood of Wainfleet, it appeared to amount to 31,200, in which are included several other species of ducks: it is also to be observed, that, in the above particular, widgeon and teal are reckoned but as one, and consequently sell but at half price of the ducks. This quantity makes them so cheap on the spot, that we have been assured, several decoy-men would be content to contract for years to deliver their ducks at Boston, for 10d. per couple. The account of the numbers here mentioned, relates only to those that were sent to the capital.

It was customary formerly to have in the fens an annual *driving* of the young ducks before they took wing. Numbers of people assembled, who beat a vast tract, and forced the birds into a net placed at the spot where the sport was to terminate. A hundred and fifty dozens have been taken at once: but this practice being supposed to be detrimental, has been abolished by act of parliament.

DECREE, an order made by a superior power for the regulation of an inferior.

DECREE, in the civil law, is a determination which the emperor pronounces upon hearing a particular cause between the plaintiff and defendant.

DECREES of Councils, are the laws made by them, to regulate the doctrine and policy of the church.

DECREES in Chancery, are the determination of the lord-chancellor, upon a full hearing of the merits of a cause.

DECREET, in the *Law of Scotland*, a final decret or judgment of the lords of session, from which an appeal only lies to parliament.

DECREET-Arbitral, in *Scots Law*, the sentence or judgment of one to whom parties voluntarily submit the determination of any question betwixt them. See *LAW Index*.

VOL. VII. Part I.

DECREMENT, in *Heraldry*, signifies the wane of Decrement the moon from the full to the new. The moon in this state is called *moon decrescens*, or in *decours*; and when borne in coat armour, faces to the left side of the escutcheon, as she does to the right side when in the increment. ||
Decurio.

DECREPITATION, in *Chemistry*, signifies the quick separation of the parts of a body, occasioned by a strong heat, and accompanied with a crackling noise. This effect is most frequently produced by water contained betwixt the parts of the decrepitating body, when these parts have a certain degree of adhesion together. This water being quickly reduced into vapour by the heat suddenly applied to it, rarefies and bursts with noise the parts which compress it. The bodies most subject to decrepitation are certain salts, such as common salt, sulphate of potash, nitrate of lead, &c. the decrepitation of all which proceeds from the water of their crystallization. Clays which are not perfectly dry, and flints, are also subject to decrepitation.

DECREPITUDE, in *Medicine*, the consequence of the infirmities of old age; which by degrees leads to death. See **DEATH**.

DECRETAL, in the canon law, a letter of a pope determining some point or question in the ecclesiastical law. The decretals compose the second part of the canon law. The first genuine one, acknowledged by all the learned as such, is a letter of Pope Siricius, written in the year 385, to Himerus bishop of Tarragona, in Spain, concerning some disorders which had crept into the churches of Spain. Gratian published a collection of decretals, containing all the ordinances made by the popes till the year 1150. Gregory IX. in 1227, following the example of Theodosius and Justinian, formed a constitution of his own, collecting into one body all the decisions and all the causes which served to advance the papal power; which collection of decretals was called the *pentateuch*, because it contains five books.

DECUMARIA, a genus of plants belonging to the dodecandria class, and in the natural method ranking under those of which the order is doubtful.

DECUMATES AGR, tithed fields, or granted on a tithe, as appears from Tacitus, to that rabble of Gauls who succeeded the Marcomanni, that had till then proved a check to the Roman conquests up the Rhine; and hence probably their name, people living on the marches or limits of the empire. In Cicero we have *Ager Decumanus*, which is of the same import with the *Ager Decumas* of Tacitus.

DECUPLE PROPORTION, that of ten to one.

DECURIO, a subaltern officer in the Roman armies. He commanded a decuria, which consisted of ten men, and was the third part of a turma, or the 30th part of a legio of horse, which was composed of 580 men. There were certain magistrates in the provinces called *decuriones municipales*, who formed a body to represent the Roman senate in free and corporate towns. They consisted of ten, whence the name; and their duty extended to watch over the interests of their fellow citizens, and to increase the revenues of the commonwealth. Their court was called *curia decurionum* and *minor senatus*; and their decrees, called *decreta decurionum*, were marked with two D. D. at the top. They generally stiled themselves *civitatum patres curiales*.

Decurrent
Leaf
||
Dedication.

les, and *honorati municipiorum senatorum*. They were elected with the same ceremonies as the Roman senators; they were to be at least 25 years of age, and to be possessed of a certain sum of money. The election happened in the kalends of March.

DECURRENT LEAF. See BOTANY *Index*.

DECURY, ten persons ranged under one chief or leader, called the *decurio*.

The Roman cavalry was divided into decuries, which were subdivisions of a century, each century containing ten decuries.

DECUSSATION, a term in geometry, optics, and anatomy, signifying the crossing of two lines, rays, or nerves, when they meet in a point, and then go on separately from one another.

DECUSSORIUM, a surgeon's instrument, which, by pressing gently on the dura matter, causes an evacuation of the pus collected between the cranium and the before mentioned membrane, through the perforation made by the trepan.

DEDHAM, a town of Essex in England, consisting of about 400 lofty houses. The streets are not paved, but very clean, occasioned by their lying pretty high. It has one large old church, remarkable for a fine Gothic steeple, with a great deal of carved work about it, but much injured by time. E. Long. 1. 10. N. Lat. 52. 5.

DEDICATION, the act of consecrating a temple, altar, statue, palace, &c. to the honour of some deity.

The use of dedications is very ancient both among the worshippers of the true God and among the heathens; the Hebrews call it *חנכה* *hbanuchab*, "imitation;" which the Greek translators render *Εκμαρμα* and *Εκμαρμος*, "renewing."

In the scripture we meet with dedications of the tabernacle, of altars, of the first and second temple, and even of the houses of private persons. There are also dedications of vessels, and garments of the priests and Levites, and even of the men themselves.

The heathens had also dedications of temples, altars, and images of their gods, &c. Nebuchadnezzar held a solemn dedication of his statue, *Dan*. iii. 2. Pilate dedicated gilt bucklers at Jerusalem to Tiberius, *Pbilo de legat*. Petronius would have dedicated a statue to the emperor in the same city, *ibid*. p. 791. Tacitus, *Hist*. lib. iv. c. 53. mentions the dedication of the capitol, upon rebuilding it by Vespasian, &c.

The Jews celebrated the anniversary of the dedication of their temple every year for eight days. This was first enjoined by Judas Maccabeus, and the whole synagogue, in the year of the Syro-Macedonian era 148, i. e. 164 years before Christ. The heathens had the like anniversaries, as that of the dedication of the temple of Parthenope, mentioned by Lycophron. Under Christianity, dedication is only applied to a church: and is properly the consecration thereof, performed by a bishop, with a number of ceremonies prescribed by the church.

The Christians finding themselves at liberty under Constantine, in lieu of their ruinous churches, built new ones in every place; and dedicated them with much solemnity. The dedication was usually performed in a synod; at least they assembled a number of bishops to assist at the service. We have the descrip-

tion of those of the churches at Jerusalem and Tyre in Eusebius, and many others in later writers.

DEDICATION, in literature, is an address prefixed to a book, soliciting patronage, or testifying respect for the person to whom it is made. The dedication of the fourth part of Mr Edwards's History of Birds, is curious: *To GOD! the ONE eternal! the incomprehensible, the omnipresent, omniscient and almighty Creator of all things that exist! from orbs immeasurably great to the minutest points of matter! — this Atom is dedicated and devoted, with all possible gratitude, humiliation, and worship, and the highest adoration both of body and mind, by his most resigned, low, and humble creature, G. E.*

DEE, JOHN, a famous mathematician and astrologer, was born (July 1527) in London, where his father was a wealthy vintner. In 1542, he was sent to St John's college, Cambridge. After five years close application to mathematical studies, particularly astronomy, he went to Holland, in order to visit several eminent mathematicians on the continent. Having continued abroad near a year, he returned to Cambridge, and was there elected one of the fellows of Trinity college, then first erected by King Henry VIII. In 1548, he took the degree of master of arts; and, in the same year, left England a second time; his stay at home being rendered uneasy to him, by the suspicions that were entertained of his being a conjuror; arising partly from his application to astronomy, but especially on account of a piece of machinery in the *Esopon* of Aristophanes, which he exhibited to the university, and in which he represented the Scarabeus flying up to Jupiter, with a man and a basket of victuals on its back. These suspicions he could never after shake off: nor did his subsequent conduct, as we shall see, tend to clear him of the imputation; for if he was not actually a conjuror, it was not for want of endeavours.

Upon leaving England, he went to the university of Louvain; where he was much esteemed, and visited by several persons of high rank. Here he resided about two years, and then set out for France; where, in the college of Rheims, he read lectures of Euclid's elements with vast applause. In 1551, he returned to England, and was introduced by the secretary Cecil to King Edward, who assigned him a pension of 100 crowns, which he afterwards relinquished for the rectory of Upton upon Severn: but soon after the accession of Queen Mary, having some correspondence with the lady Elizabeth's servants, he was accused of practising against the queen's life by enchantment. On this account he suffered a tedious confinement, and was several times examined; till, in the year 1555, he obtained his liberty by an order of council.

When Queen Elizabeth ascended the throne, our astrological Dee was consulted by Lord Dudley, concerning a propitious day for her majesty's coronation. He was on this occasion introduced to the queen, who made him great promises, which were never performed, though she condescended to receive his instructions relative to the mystical interpretation of some of his unintelligible writings, which he published about this time. In 1564, he made another voyage to the continent; in order to present a book which he had dedicated to the emperor Maximilian. He returned to England in the same year: but in 1571, we find him in Lorrain; where, being dangerously ill, the queen sent over two physicians

Dedication,
Dec.

Dec. physicians to his relief. Having once more returned to his native country, he settled at Mortlake in Surrey, where he continued his studies with unremitting ardour, and collected a considerable library of curious books and manuscripts, with a variety of instruments; most of which were afterwards destroyed by the mob, as belonging to one who dealt with the devil. In 1578, the queen being much indisposed, Mr Dee was sent abroad to consult with German physicians and philosophers (astrologers no doubt) on the occasion. We now behold him again in England, where he was soon after employed in a more rational service. Her majesty, desirous to be informed concerning her title to those countries which had been discovered by her subjects, commanded Mr Dee to consult the ancient records, and furnish her with proper geographical descriptions. Accordingly, in a short time he presented to the queen, in the gardens at Richmond, two large rolls, in which the discovered countries were geographically described and historically illustrated. These rolls are preserved in the Cotton library, *Augustus I.* His next employment was the reformation of the calendar, on which subject he wrote a rational and learned treatise, preserved in the Ashmolean library at Oxford.

Hitherto the extravagancies of our eccentric philosopher seem to have been counterpoised by a tolerable proportion of reason and science; but henceforward we consider him as a mere necromancer and credulous alchemist. In the year 1581, he became acquainted with one Edward Kelly, by whose assistance he performed diverse incantations, and maintained a frequent imaginary intercourse with spirits. He was particularly intimate, it seems, with the angels Raphael and Gabriel. One of them made him a present of a black speculum, in which his angels and demons appeared as often as he had occasion for them; they answered his questions, and Kelly's business was to record their dictates:

Kelly did all his feats upon
The devil's looking-glass, a stone.

HUDIB. Part II. Canto iii. 631.

In 1583, they were both introduced to a certain Polish nobleman, then in England, named *Albert Laskei*, palatine of Siradia, a person equally addicted to the same ridiculous pursuits. He was so charmed with Dee and his companion, that he persuaded them to accompany him to his native country. They embarked for Holland in Sept. 1583; and travelling over land, arrived at the town of Laski in February following. Their patron, however, finding himself abused by their idle pretensions, persuaded them to pay a visit to Rodolph king of Bohemia; who, though a credulous man, was soon disgusted with their nonsense. They were afterwards introduced to the king of Poland, but with no better success. Soon after this, they were invited by a rich Bohemian nobleman to his castle of Trebona, where they continued for some time in great affluence: owing, as they asserted, to their art of transmutation by means of a certain powder in the possession of Kelly.

Dee, now quarrelling with his companion in iniquity, quitted Bohemia, and returned to England, where he was once more graciously received by the queen;

who, in 1595, made him warden of Manchester college, in which town he resided several years. In 1604, he returned to his house at Mortlake, where he died in the year 1608, aged 81; leaving a large family, and many works behind him.—The black stone into which Dee used to call his spirits, was in the collection of the earls of Peterborough, whence it came to Lady Elizabeth Germaine. It was next the property of the late duke of Argyle, and is now Mr Walpole's. It appears upon examination to be nothing but a polished piece of cannel coal.—That Dee was a man of considerable acquirements, is beyond a doubt; his mathematical knowledge is generally allowed: but, unless we suppose him a wicked impostor, which is by no means improbable, we must transmit him to posterity as one of the most foolish, superstitious necromancers of his time. Nevertheless, the celebrated Dr Hook, many years after Dee's death, took it into his head to prove that his journal, published by Casaubon, was entirely cryptographical, concealing his political transactions, and that he was employed by Queen Elizabeth as a spy.

DEE, the name of several rivers in Scotland and England; as those whereon the cities of Chester in England, and New Aberdeen in Scotland, are situated. The river Dee in Aberdeenshire abounds with salmon, so as to form one of the greatest salmon-fishings in Scotland. Over this river there is a bridge of seven arches, built by a bishop of Aberdeen, who left for its support a revenue, which is now so large, that in order to exhaust the fund, a person has a salary to sweep the bridge once a day.

DEED, an instrument written on paper or parchment, comprehending some contract, bargain, or agreement between the parties thereto, in relation to the matter therein contained.

DEEMSTERS, or DEMSTERS (from the Saxon *dema*, judge or umpire.) All controversies in the Isle of Man are decided without process, writings, or any charges, by certain judges, chosen yearly from among themselves, called *deemsters*; there being two of them for each division of the island: they sit judges in all courts, either for life or property; and with the advice of 24 keys, declare what is law in uncommon emergencies.

DEEPING, a town of Lincolnshire in England, seated on the river Weland, in a fenny ground. W. Long. o. 20. N. Lat. 52. 35.

DEER, in *Zoology*. See *CERVUS*.—The method of hunting deer in the island of Ceylon is very particular. The huntsmen go out in the night, and only two usually go together; the one of these carries upon his head an earthen vessel, in which there is some fire burning and flaming; the ingredients are generally small sticks cut into pieces, and common rosin. Of this the other man carries a supply about him to replenish the pot when it grows low. The person who has the fire upon his head, carries in one hand a staff, on which there are fixed eight bells; and the larger these are, the better. This man goes first into the woods, and the other follows close behind with a spear in his hand. As soon as the deer hears the noise of the bells, he turns towards the place whence the sound comes; and seeing the fire, he eagerly runs up to it, and stands gazing at a small distance: the second man

Dec
||
Deer.

De facto
||
Defend.

has then nothing to do but to kill him with the spear; for he sees neither of them. Not only deer, but even elks and hares are thus taken; for they gaze at the fire, and never see the men. The profits of this sort of hunting are very large, and the danger nothing; for though there are numbers of tygers, elephants, and wild boars, in these woods, the huntsmen are in no danger from them while the fire burns, for they all run away from it.

DE FACTO, something actually in fact, or existing; in contradistinction to *de jure*, where a thing is only so in justice, but not in fact: as a king *de facto*, is a person who is actually in possession of a crown, but has no legal right to the same; and a king *de jure*, is the person who has a just right to the crown, though he is out of possession thereof.

DEFAMATION, the speaking slanderous words of another; for which the slanderer is punishable, according to the nature of his offence, either by action upon the case at common law, or by statute in the ecclesiastical court.

DEFAULT, in *Law*, is generally taken for non-appearance in court, at a day assigned; but imports any omission of that which we ought to do, for which judgment may be given against the defaulter.

DEFEASANCE, or DEFEISANCE, in *Law*, a condition relating to some certain deed, which being performed, the deed is defeated and rendered void, as if it had never been made. The difference between a common condition and a defeasance is, that the condition is annexed to, or inserted in, the deed; and a defeasance is a deed by itself concluded and agreed on between the parties, and having relation to another deed.

DEFECATE, in *Chemistry*, a term applied to a body freed and purged from faeces and impurities.

DEFECTION, the act of abandoning or relinquishing a party or interest a person had been engaged in. The word is formed of the Latin *deficio*, to fall off.

DEFECTIVE, in general, an appellation given to things which want some of the properties that naturally they ought to have. Thus,

DEFECTIVE or *Deficient Nouns*, in *Grammar*, are such as want either a whole number, a particular case, or are totally indeclinable. See *NOUN*.

The term *defective* is also applied to a verb that has not all its moods and tenses. See *VERB*, *MOOD*, &c.

DEFENCE, in *Fortification*, all sorts of works that cover and defend the opposite posts, as flanks, casements, parapets, and faussebrays. See *FORTIFICATION*.

Line of DEFENCE, a supposed line drawn from the angle of the curtain, or from any other part in the curtain, to the flanked angle of the opposite bastion.

DEFEND, in general, signifies much the same with protecting or keeping off injuries offered to any person either by enemies or otherwise.

DEFEND, in our ancient laws and statutes, signifies to prohibit or forbid: as *Uuarios defendit quoque rex Edwardus ne remaneret in regno*. L. L. Edw. Conf. c. 38. & 5 Rich. 2. c. 7. In which sense Chaucer also uses it in the following passage:

“Where can you say in any manner age,
“That ever God defended marriage.”

In 7 Edw. I. there is a statute entitled, “*Statutum de Defensione portandi arma*,” &c. And “it is defended by law to distrain on the highway;” *Coke on Littl.* fol. 161.

DEFENDANT, in *Law*, the person sued in an action personal; as *tenant* is he who is sued in an action real. See *ACTION*.

DEFENDER of the FAITH (*Fidei Defensor*), a peculiar title belonging to the king of England; as *Catholicus* to the king of Spain, and *Christianissimus* to the king of France, &c. These titles were given by the popes of Rome. That of *Fidei Defensor* was first conferred by Leo X. on King Henry VIII. for writing against Martin Luther; and the bull for it bears date *quinto idus Octob. 1521*. It was afterwards confirmed by Clement VII. But the pope, on Henry's suppressing the houses of religion at the time of the Reformation, not only deprived him of his title, but deposed him from his crown also: though in the 35th year of his reign, his title, &c. was confirmed by parliament; and hath continued to be used by all succeeding kings to this day. Chamberlayne says, the title belonged to the kings of England before that time; and for proof hereof appeals to several charters granted to the university of Oxford. So that pope Leo's bull was only a renovation of an ancient right.

DEFENDERS, were anciently notable dignities both in church and state, whose business was to look to the preservation of the public weal, to protect the poor and helpless, and to maintain the interests and causes of churches and religious houses. See *PROTECTOR*. The council of Chalcedon, can. 2. calls the defender of a church *Evdikos*. Codin, *de officiis aulae Const.* makes mention of defenders of the palace. There were also a defender of the kingdom, *defensor regni*; defenders of cities, *defensores civitatis*; defenders of the people, *defensores plebis*; of the poor, fatherless, widows, &c.

About the year 420, each patriarchal church began to have its defender; which custom was afterwards introduced into other churches, and continued to later days under other names; as those of *Advocate* and *Advowee*.

In the year 407, we find the council of Carthage asked the emperor, for defenders, of the number of *Scholastici*, i. e. advocates who were in office; and that it might be allowed them to enter and search the cabinets and papers of the judges and other civil magistrates, whenever it should be found necessary for the interest of the church.

DEFERENS, or DEFERENT, in the ancient astronomy, an imaginary circle, which, as it were, carries about the body of a planet, and is the same with the eccentric; being invented to account for the eccentricity, perigee, and apogee of the planets.

DEFILE, in *Fortification*, a straight narrow passage, through which a company of horse or foot can pass only in file, by making a small front.

DEFINITE, in *Grammar*, is applied to an article that has a precise determinate signification; such as the article *the* in English, *le* and *la* in French, &c. which fix and ascertain the noun they belong to, to some particular; as *the king*, *le roy*: whereas, in the quality of *king*, *de roy*, the articles *of* and *de* mark nothing precise, and are therefore indefinite.

DEFINITION,

Defendant
||
Definite.

DEFINITION, in general, a short description of a thing by its properties; or, in logic, the explanation of the essence of a thing by its kind and difference.

Definition
||
Defloration.

DEFINITIVE, a term applied to whatever terminates a process, question, &c. in opposition to provisional and interlocutory.

DEFLAGRATION, in *Chemistry*, the kindling or setting fire to a salt or mineral, &c. either alone or mixed for that purpose with a sulphureous one, in order to purify it.

This short process has been often recommended to the world as of great use in trying the strength of brandies and other vinous spirits, and has been greatly improved in this respect by Mr Geoffroy.

The common way of trying spirits by deflagration, is to measure out any quantity of it, then to heat it, and set it on fire. If, after it will no longer burn, the remainder is half as much as the quantity measured out for the trial was, then the spirit tried is found to consist of half water, and half totally inflammable spirit; that is, it is somewhat below what we understand by the term *perfect proof*.—This method is much more certain than that by the crown of bubbles which arises upon shaking the spirit in a phial. Monf. Geoffroy's method is this: Take a cylindrical vessel two inches high, and as much in diameter, consisting of thin plate silver, that metal being much less liable to rust than copper; this vessel must be fitted with a little rectangular gage exactly graduated into lines, half lines, &c. then the vessel being set level upon a copper case made to contain it, a parcel of the brandy to be examined is poured in, to the height of 16 lines. This height is to be exactly hit by pouring in more than enough at first, and then sucking out the overplus with a very small tube. Then the vessel being heated a little, so as just to make the liquor fume, it is to be set on fire and left to go out of itself; at the instant when the flame expires, the gage is plunged perpendicularly into the vessel, and the lines and quarters exactly noted which the liquor wants of its former height: this difference gives the precise quantity of alcohol or pure spirit contained in the liquor. Thus, if eight lines of phlegm are found remaining, this being the half of the 16 lines of the original filling, it is plain, that the liquor contained one half spirit, or was something below proof. If only four lines remained, it was nearly double proof, or of a middle nature betwixt alcohol and common proof-spirit.

DEFLECTION, the turning any thing aside from its former course by some adventitious or external cause. The word is often applied to the tendency of a ship from her true course by reason of currents, &c. which turn her out of her right way. It is likewise applied by astronomers to the tendency of the planets from the line of their projection, or the tangent of their orbit.

DEFLECTION of the Rays of Light, a property which Dr Hook observed in 1675, and read an account of before the Royal Society, March 18th the same year. He says he found it different both from reflection and refraction, and that it was made towards the surface of the opaque body, perpendicularly. This is the same property which Sir Isaac Newton calls inflection.

DEFLORATION, or **DEFLOWERING**, the act of

violating or taking away a woman's virginity. See **DEFLEXION**; **DEFLORE**.
VIRGINITY.—Death or marriage are decreed by the civil law in case of defloration.

The ancients had so much respect for virgins, that they would not put them to death till they had first procured them to be deflowered. It is said, the natives of the coast of Malabar pay strangers to come and deflower their brides.

In Scotland, and the northern parts of England, it was a privilege of the lords of the manor, granted them by King Ewen, that they should have the first night's lodging with their tenants wives. King Malcom III. allowed the tenants to redeem this service at a certain rate, called *marcbeta*, consisting of a certain number of cows: Buchanan says it was redeemed with half a mark of silver. The same custom had place in Wales, Flanders, Friesland, and some parts of Germany.

DEFLUXION, in *Medicine*, the falling of the humours from a superior to an inferior part of the body.

DEFOE, DANIEL, a writer famous for politics and poetry, was bred a hosier; which profession however he soon forsook, and became one of the most enterprising authors that any age produced. When dissenters ran high at the Revolution, and King William was obliged to dismiss his Dutch guards, Defoe, who had true notions of civil liberty, ridiculed the enemies of government in his well-known poem, called the *True-born Englishman*, which had a prodigious sale. The next satire he wrote was entitled *Reformation of Manners*; aimed at some persons of high rank, who rendered themselves a disgrace to their country. When the ecclesiastics in power breathed too much of a spirit of persecution, Defoe wrote a tract called the *Shortest Way with the Dissenters*: for which he was called to account, and explained himself with great firmness. He was afterwards sentenced to the pillory for attacking some public measures; which so little intimidated him, that, in defiance of their usage, he wrote a Hymn to the Pillory. It would be endless to enumerate all his publications; but the following are the principal: the *History of the Plague in 1665*; a novel entitled the *History of Colonel Jack*; a new *Voyage round the World by a Company of Merchants*, printed for Bettesworth, 1725; the *History of Roxana*; *Memoirs of a Cavalier*; the *History of Moll Flanders*; a book entitled *Religious Courtship*, which has undergone upwards of 20 editions; and the *Life and Adventures of Robinson Crusoe*, an admirable performance, of which there have been editions without number, but concerning which there is an anecdote that does the author of it no credit as to the better part of a writer's character, honesty. When Captain Woods Rogers touched at the island of Juan Fernandez, in the South sea, he brought away Alexander Selkirk, a Scotch sailor, who had been left ashore there, and had lived on that desolate place above four years. When Selkirk came back to England, he wrote a narrative of his adventures, and put the papers into the hands of Defoe, to digest for publication; who ungenerously converted the materials into the *History of Robinson Crusoe*, and returned Selkirk his papers again! A fraud for which, in a humane view, the distinguished merit of that romance can never atone. Daniel Defoe died at Islington, in 1731. All his productions of the romantic

Defoliation. mantic species, but especially the two last mentioned, are much in vogue among country readers; and, on account of their moral and religious tendency, may very probably in some measure counteract the pernicious effects produced by the too general circulation of modern novels, those occasional vehicles of impiety and infidelity.

DEFOLIATION, (from *de*, and *folium* "a leaf"); the fall of the leaves. A term opposed to *frondescentia*, the annual renovation of the leaves, produced by the unfolding of the buds in spring. See FRONDESCENTIA.

Most plants in cold and temperate climates shed their leaves every year: this happens in autumn, and is generally announced by the flowering of the common meadow saffron. The term is only applied to trees and shrubs; for herbs perish down to the root every year, losing stem, leaves, and all.

All plants do not drop their leaves at the same time. Among large trees, the ash and walnut, although latest in unfolding, are soonest divested of them: the latter seldom carries its leaves above five months.

On the oak and hornbeam, the leaves die and wither as soon as the colds commence; but remain attached to the branches till they are pushed off by the new ones, which unfold themselves the following spring. These trees are doubtless a kind of evergreens: the leaves are probably destroyed only by cold; and perhaps would continue longer on the plant, but for the force of the spring-sap, joined to the moisture.

In mild and dry seasons, the lilach, privet, yellow jessamine of the woods, and maple of Crete, preserve their leaves green until spring, and do not drop them till the new leaves are beginning to appear. The fig-tree, and many other trees that grow between the tropics, are of this particular class of evergreens. The trees in Egypt, says Doctor Hasselquist, cast their leaves in the latter end of December and beginning of January, having young leaves ready before all the old ones are fallen off; and, to forward this operation of nature, few of the trees have buds: the sycamore and willow, indeed, have some, but with few and quite loose *stipule* or scales. Nature did not imagine buds so necessary in the southern as in the northern countries: this occasions a great difference between them.

Lastly, some trees and shrubs preserve their leaves constantly through the whole year; and are not in the least influenced by the clemency or inclemency of seasons. Such are the fir, juniper, yew, cedar, cypress, and many other trees, hence denominated *evergreens*. These preserve their old leaves a long time after the formation of the new, and do not drop them at any determinate time. In general, the leaves of evergreens are harder, and less succulent, than those which are renewed annually. The trees are generally natives of warm climates; as the alaternuses of France and Italy, the evergreen oak of Portugal and Suabia.

Some herbaceous perennials, as the house-leeks and navel-worts, enjoy the same privilege with the evergreen trees, and resist the severities of winter: some even can dispense with the earth for some time; being replete with juices, which the leaves imbibe from the humidity of the atmosphere, and which, in such plants,

are, of themselves, sufficient for effecting the purposes of vegetation. It is for this reason, that, unless in excessive hot weather, gardeners are seldom wont to water fat succulent plants, as the aloes, which rot when they are moistened, if the sun does not quickly dry them up.

The leaves of all the evergreen shrubs and trees have a thin compact skin or cover over their surface; as is easily discovered by macerating them in water, in order to separate the parenchyma, or pulp, from the vessels of the leaves; which cannot be effected in any of these evergreens till a thin parchment-like cover is taken off. These trees and shrubs are found by experiment to perspire but little, when compared with others which shed their leaves; and it is, perhaps, principally owing to this close covering, as also to the small proportion of moisture contained in their vessels, that they retain their verdure, and continue through the winter on the trees. The nutritive juices of these plants always abound, more or less, with an oily quality, which secures them from being injured by severe frosts; so that many of these evergreen trees are adapted to grow in the coldest parts of the habitable world.

With respect to deciduous trees, the falling off of the leaves seems principally to depend on the temperature of the atmosphere, which likewise serves to hasten or retard the appearance in question. An ardent sun contributes to hasten the dropping of the leaves. Hence in hot and dry summers, the leaves of the lime-tree and horse-chestnut turn yellow about the first of September; whilst in other years, the yellowness does not appear till the beginning of October. Nothing, however, contributes more to hasten the fall of the leaves, than immoderate cold or moist weather in autumn; moderate droughts, on the other hand, serve to retard it. As a proof of this position, Mr Adanson relates, that in the year 1759, the leaves of the elm-tree, which generally fall off about the 25th of November, continued in verdure and vigour at Paris, where the autumn was remarkably dry, till the 10th of the following month.

The following table, respecting the mean times in which different trees shed their leaves, is founded upon observation.

Gooseberry-tree and bladder-sena,	} Generally quit their leaves about	October 1st.
Walnut and ash,		_____ 15th.
Almond-tree, horse-chestnut, and lime-tree,		_____ 20th.
Maple, hazel-nut, black poplar, and aspen tree.		_____ 25th.
Birch, plane-tree, mountain-osier, false acacia, pear, and apple-tree,		November 1st.
Vine, mulberry, fig, sumach, and angelica-tree,		_____ 10th.
Elm-tree and willow,		_____ 15th.
Apricot and elder-trees,		_____ 20th.

It deserves to be remarked, that an evergreen tree grafted upon a deciduous, determines the latter to retain its leaves. This observation is confirmed by repeated experiments, particularly by grafting the laurel, or

Deformity,
Deformity.

or cherry-bay, an evergreen, on the common cherry; and the ilex, or evergreen oak, on the oak.

DEFORCEMENT, in *Law*, the casting any one out of his land, or withholding of lands and tenements by force from the right owner.

DEFORCEMENT, in *Scots Law*, the opposing or resisting of the officers of the law in the execution of their office. See *LAW Index*.

DEFORMITY, the want of that uniformity necessary to constitute the beauty of an object. See **BEAUTY**.

Deformity is either natural or moral. These are both referred by Mr Hutcheson to an internal sense; and our perceptions of them, as he supposes, arises from an original arbitrary structure of our own minds, by which certain objects, when observed, are rendered the occasions of certain sensations and affections.

That many objects give no pleasure to our sense is obvious. Many are certainly void of beauty; but then, says this author, there is no form which seems necessarily disagreeable of itself, when we dread no other evil from it, and compare it with nothing better of the kind. Many objects are naturally displeasing and distasteful to our external senses, as well as others pleasing and agreeable; as smells, tastes, and some separate sounds; but with regard to our sense of beauty, no composition of objects which give not unpleasant simple ideas, seems positively unpleasant or painful of itself, had we never observed any thing better of the same kind.

Had there been a species of the form which we now denominate *ugly* or *deformed*, and had we never seen or expected greater beauty, we should have received no disgust from it; though the pleasure would not have been so great in this form as in those we now admire. Our sense of beauty seems designed to give us positive pleasure; but not positive pain or disgust, any farther than what arises from disappointment.

There are indeed many faces which at first view are apt to raise dislike. But this is generally not from any positive deformity; but either from want of expected beauty, or from the carrying some natural indications of morally bad dispositions, which we all acquire a faculty of discerning in countenances, airs, and gestures. That this is not occasioned by any form positively disgusting, appears hence, that if, upon long acquaintance, we are sure of finding sweetness of temper, humanity, and cheerfulness, though the bodily form continues, it shall give us no disgust. There are horrors raised by some objects, which are only the effect of fear for ourselves, or compassion towards others, when either reason, or some foolish association of ideas, makes us apprehend danger; and not the effect of any thing in the form itself. For we find, that most of those objects which excite horror at first, when experience or reason has removed the fear, may become the occasion of pleasure.

The casual conjunction of ideas gives us disgust, when there is nothing disagreeable in the form itself. And this, in effect, is the cause of most of our fantastic aversions to the figures of divers animals, &c. Thus serpents of all kinds, and many insects, really beautiful enough, are beheld with aversion by many people, who have got some accidental ideas of mischief associated to them. A similar reasoning is ap-

plied to our perception of moral beauty and deformity. *Deformity. Inquiry into the Original of our Ideas of Beauty and Virtue*, passim.

But it is more just to distinguish between the sentiments of delight or disgust, excited in us by beautiful or deformed objects, which are effects of some causes, and the natural and real qualities of the perceived objects by which they are produced. There are objects, says an excellent writer, which have a natural aptitude to please or offend, or between which and the contemplating mind there is a necessary congruity or incongruity; and though the actual perception of the understanding, and consequent feeling of the heart, in contemplating the actions and affections of moral agents, may exist in very different degrees, on account of the incidental obstructions arising from bodily indisposition, mental prejudices and biases, and the association of ideas; yet, to every rational mind properly disposed, morally good actions must for ever be acceptable, and can never of themselves offend; and morally evil actions must for ever be disagreeable, and can never of themselves please. What is right in actions and characters is beautiful and amiable, and gives pleasure; what is wrong is deformed and odious, and excites disgust: right and pleasure, wrong and pain, are as distinct as cause and effect. It is no less absurd to maintain, that the perception of virtue is nothing distinct from the reception of the pleasure resulting from it, than to infer, with some metaphysicians, that solidity, extension, and figure, are only particular modes of sensation, because attended, whenever they are perceived, with some sensations of sight or touch. Thus does the author show, that moral beauty and deformity are real qualities of certain actions; in which consists their aptitude to please or disgust. With respect to natural beauty, he observes, that uniformity amidst variety pleases, because of the natures of variety and uniformity, which are such, that whenever united, they are adapted to please every free unbiassed mind that discerns them. He accounts for the pleasure they afford, without referring them to an arbitrary internal sense, by the following circumstances that attend them. They are more easily comprehended by the mind: order and symmetry give things their stability and strength, and subserviency to any valuable purpose; regularity and order evidence art and design. Disorder and confusion, whence deformity arises, denote only the negation of regularity and order; or any arrangement and disposition of things, which are not according to a law, rule, or plan, and prove not design. These are not positively displeasing; except where we previously expected order, or where impotence or want of skill appear, and the contriver has either failed of his design or executed it ill.

In a work entitled *Fugitive Pieces*, is preserved an essay on Bodily Deformity by William Hay, Esq; who was himself what he describes, and who, while he rallies his own figure with great pleasantry, discusses the general subject in a manner equally instructive and agreeable. He considers, 1. The natural consequences of bodily deformity; 2. How it affects the outward circumstances; and, 3. What turn it gives to the mind.

1. It is certain, that the human frame, being warped and disproportioned, is lessened in strength and activity,

Deformity. tivity, and rendered less fit for its functions. Scaron had invented an engine to take off his hat; "and I wish (says our author) I could invent one to buckle my shoe, or to take up a thing from the ground, which I can scarce do without kneeling, for I can bend my body no farther than it is bent by nature. For this reason, when ladies drop a fan or glove, I am not the first to take it up; and often restrain my inclination to perform those little services, rather than expose my spiderlike shape. And I hope it will not be construed as pride, if I do not always rise from my seat when I ought: for if it is low, I find some trouble in it; and my centre of gravity is so ill placed, that I am often like to fall back. Things hanging within the reach of others are out of mine; and what they can execute with ease, I want strength to perform. I am in danger of being trampled upon or stifled in a crowd, where my back is a convenient lodgment for the elbow of any tall person that is near. I can see nothing, and my whole employment is to guard my person. I have forborne to attend his majesty in the house of peers since I was like to be squeezed to death there against the wall. I would willingly come thither when his majesty commands, but he is too gracious to expect impossibilities. Besides, when I got in, I can never have the pleasure of seeing on the throne one of the best princes who ever sat on it. These, and many others, are the inconveniences continually attending a figure like mine. They may appear grievous to persons not used to them, but they grow easier by habit; and though they may a little disturb, they are not sufficient to destroy the happiness of life; of which, at an average, I have enjoyed as great a share as most men. And perhaps one proof of it may be my writing this essay; not intended as a complaint against Providence for my lot, but as an innocent amusement to myself and others.

As to what effect deformity may have on the health, it appears natural to imagine, that as the inward parts of the body must in some measure comply with the outward mould, so the form of the latter being irregular, the first cannot be so well placed and disposed to perform their functions; and that generally deformed persons would not be healthy or long-lived. But this is a question best determined by facts; and in this case the instances are too few or unobserved, to draw a general conclusion from them: and health is more than is commonly thought in a man's own power, and the reward of temperance more than the effect of constitution; which makes it still more difficult to pass a judgment. Æsop could not be young when he died; and might have lived longer if he had not been murdered at Delphi. The prince of Orange scarce passed the meridian of life, and the duke of Luxemburg died about the age of 67. The lord treasurer Burleigh lived to 78; but his son the earl of Salisbury, who died about 15 years after him, could not reach near that age. It is said that Mr Pope's father was deformed, and he lived to 75; whereas the son died in middle age, if he may be said to die whose works are immortal. "My father (adds our author) was not deformed, but active, and my mother a celebrated beauty; and I, that am so unlike them, have lived to a greater age, and daily see my acquaintance of a stronger frame quitting the stage before me."

But whether deformity, abstractedly considered, be Deformity. really prejudicial to health, in its consequences it appears to be most commonly an advantage. Deformed persons have a less share of strength than others, and therefore should naturally be more careful to preserve it; and as temperance is the great preservative of health, it may incline them to be more temperate. Another great preservative of health is moderate exercise, which few deformed persons can want strength to perform. As a deformed person is not formed for violent exercise, he is less liable to such disorders as are the natural consequence of it. He will also escape many accidents, to which men of athletic make, and who glory in their strength, are always exposing themselves to make trial and proof of it. If he cannot carry an ox, like Milo, he will not like Milo be handcuffed in the oak by attempting to rend it. He will not be the man that shall ride from London to York in a day, or to Windsor in an hour, for a wager; or that shall be perpetually performing surprising long journeys in a surprising short time, for no earthly business but the pleasure of relating them. Conscious of his own weakness, he will be cautious of running into places or occasions of danger. Nature, too, warns deformed persons to be careful not to offer such affronts as may call them forth into the field of false honour, where they cannot acquit themselves well for want of strength and agility; and they are securer from such affronts themselves, since others will consider the little credit they will gain by compelling them to appear on that scene. On the whole, therefore, it may be concluded, that deformity is a protection to a man's health and person; which (strange as it may appear) are better defended by feebleness than strength.

2. The influence of bodily deformity on a man's fortune may next be considered. Among the lower class, he is cut off from many professions and employments. He cannot be a soldier, he is under standard; he cannot be a sailor, he wants activity to climb the rigging; he cannot be a chairman or porter, he wants strength to bear the burden. In higher life, he is ill qualified for a lawyer, he can scarce be seen over the bar; for a divine, he may drop from his hassock out of sight in his pulpit. The improvement of his mind is his proper province, and his business only such as depends on ingenuity. If he cannot be a dancing-master to adjust the heels, he may be a schoolmaster to instruct the head: he cannot be a graceful actor on the stage; but he may produce a good play: he would appear ill as a herald in a procession; but may pass as a merchant on the change: he cannot undergo the fatigue of the campaign; but he may advise the operations of it: he is designed by nature rather to sleep on Parnassus, than to descend on the plains of Eolis: he cannot be crowned at the Olympic games; but may be the Pindar to celebrate them: he can acquire no glory by the sword; but he may by the pen, and may grow famous by only relating those exploits which are beyond his power to imitate.

Lord Bacon (that extensive and penetrating genius who pointed out every part of nature for examination), in his Essay on Deformity, says, "that in their superiors it quencheth jealousy towards them, as persons that they think they may at pleasure despise; and it layeth their competitors and emulators asleep, as never believing

Deformity. believing they should be in a possibility of advancement till they see them in possession." But it is much to be doubted whether this is not more than counterbalanced by the contempt of the world, which it requires no mean parts to conquer; for if (as has been said) a good person is a letter of recommendation, deformity must be an obstruction in the way to favour. In this respect, therefore, deformed persons set out in the world to a disadvantage; and they must first surmount the prejudices of mankind before they can be upon a par with others, and must obtain by a course of behaviour that regard which is paid to beauty at first sight. When this point is once gained, the tables are turned, and then the game goes in their favour: for others, sensible of their injustice to them, no sooner find them better than they expected, than they believe them better than they are; whereas in the beautiful person they sometimes find themselves imposed upon, and are angry that they have worshipped only a painted idol. For (again take Lord Bacon's words) "neither is it almost seen, that very beautiful persons are otherwise of great virtue: they prove accomplished, but not of great spirit; and study rather behaviour than virtue.

Whereas deformed persons, if they be of spirit, will free themselves from scorn, which must be either by virtue or malice; and therefore let it not be marvelled if they sometimes prove excellent persons, as was Agestilaus, Zanger the son of Solomon, Æsop, Gasca president of Peru; and Socrates may likewise go amongst them, with others." Nay, he says "in a great wit deformity is an advantage to rising." And in another part of his works, "that they who by accident have some inevitable and indelible mark on their persons or fortunes, as deformed people, bastards, &c. if they want not virtue, generally prove fortunate."

Osborn, in his Historical Memoirs of Queen Elizabeth, informs us, that "the chose the goodliest persons for her household servants: but in her counsellors did not put by sufficiency, though accompanied with a crooked person; as it chanced in a father and a son of the Cecils, both incomparable for prudence." It is well known the queen would make the father (Burleigh) sit in her presence; telling him that she did not use him for his legs but his head. But the son (afterwards lord treasurer and earl of Salisbury) was not so civilly treated by the populace; and is an instance, not only that envy pursues a great man, but that the highest post cannot redeem a deformed one from contempt: it attends him like his shadow, and like that too is ever reminding him of his ill figure, which is often objected for want of real crimes. For the same writer says of the same great man, "that the misfortunes accompanying him from his birth, did not a little add to that cloud of detraction that fell upon all that he said or did; a mulct in nature, like an optic spectacle, multiplying much in the sight of the people the apparitions of ill." Nor was this contempt buried with him: it trampled on his ashes, and insulted his grave; as appears by an epitaph, which Osborn cites,

Vol. VII. Part I.

as void of wit as it is full of scurrility; in one line of which there is an epithet, not so elegant as descriptive of his person, *viz.* "Little Bostive Robin that was so great."

Such contempt in general, joined with the ridicule of the vulgar, is another certain consequence of bodily deformity; for men naturally despise what appears less beautiful or useful, and their pride is gratified when they see such foils to their own persons. It is this sense of superiority which is testified by laughter in the lower sort; while their betters, who know how little any man whatsoever hath to boast of, are restrained by good sense and good breeding from such an insult. But it is not easy to say why one species of deformity should be more ridiculous than another, or why the mob should be more merry with a crooked man, than with one that is deaf, lame, squinting, or purblind. It is a back in alto relievo that bears all the ridicule; though one would think a prominent belly a more reasonable object of it, since the last is generally the effect of intemperance, and of a man's own creation. Socrates was ugly, but not contemned; and Philopœmen (A) of very mean appearance, and though contemned on that account not ridiculed: for Montaigne says, "Ill features are but a superficial ugliness, and of little certainty in the opinion of men; but a deformity of limbs is more substantial, and strikes deeper in." As it is more uncommon, it is more remarkable; and that perhaps is the true reason why it is more ridiculed by the vulgar.

5. The last consideration on this subject relates to those passions and affections which most naturally result from deformity. Lord Bacon observes, that "deformed persons are commonly even with nature; for as nature hath done ill by them, so do they by nature, being for the most part (as the scripture saith) *void of natural affection.*" But (says Mr Hay) "I can neither find out this passage in scripture, nor the reason of it; nor can I give my assent or negative to a proposition, till I am well acquainted with the terms of it. If by natural affection is here meant universal benevolence, and deformity necessarily implies a want of it, a deformed person must then be a complete monster. But however common the case may be, my own sensations inform me that it is not universally true. If by natural affection is meant a partial regard for individuals, I believe the remark is judicious, and founded in human nature. Deformed persons are despised, ridiculed, and ill-treated by others; are seldom favourites, and commonly most neglected by parents, guardians, and relations; and therefore as they are not indebted for much fondness, it is no wonder if they repay but little. It is the command of scripture, *Not to set our affections on things below*; and it is the voice of reason not to overvalue what we must soon part with; therefore, to be so fond of others as not to be able to bear their absence, or to survive them, is neither a religious nor moral duty, but a childish and womanish weakness; and I must congratulate deformed persons, who, by ex-

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ample,

(A) Coming to an inn, where he was expected, before his attendants, the mistress of the house seeing a plain person of very mean aspect, ordered him to assist in getting things ready for Philopœmen. His attendants finding him so employed, he told them he was then paying the tribute of his ugliness. *Plutarch.*

Deformity. ample, are early taught another lesson. And I will now lay open my own heart to the reader, that he may judge if Lord Bacon's position is verified in me.

"I hope it proceeds not from a malignity of heart; but I never am much affected with the common accidents of life, whether they befall myself or others. I am little moved when I hear of death, loss, or misfortune; I think the case is common.

Tritus, et e medio fortunæ ductus acervo;

Juv. Sat. xiii.

And as it is always likely to happen, I am not surprised when it does. If I see a person cry or beat his breast on any such occasion, I cannot bear him company; but am not a Democritus to laugh at his folly. I read of battles and fields covered with slain; of cities destroyed by sword, famine, pestilence, and earthquake; I do not shed a tear: I suppose it is because they are the usual storms, to which the human species are exposed, proceeding from the just judgments of God, or the mistaken and false principles of rulers. I read of persecutions, tortures, murders, massacres; my compassion for the sufferers is great, but my tears are stopped by resentment and indignation against the contrivers and perpetrators of such horrid actions. But there are many things that bring tears into my eyes whether I will or no; and when I reflect, I am often at a loss in searching out the secret source from whence they flow. What makes me weep (for weep I do) when I read of virtue or innocence in distress; of a good man helpless and forsaken, unmoved by the greatest insults and cruelties, or courageously supporting himself against oppression in the article of death? I suppose it is to see vice triumphant, and virtue so ill rewarded in this life. May I judge by myself, I should imagine that few sincere Christians could read the sufferings of their Saviour, or Englishmen those of a Cranmer, Ridley, or Latimer, without tears; the first dying to establish his religion, the last to rescue it from corruption. When I read of Regulus returning to torment, and John of France to imprisonment, against the persuasion of friends, to keep faith with their enemies, I weep to think there is scarce another instance of such exalted virtue. Those who often hear me read, know that my voice changes, and my eyes are full, when I meet with a generous and heroic saying, action, or character, especially of persons whose example or command may influence mankind. I weep when I hear a Titus say, that he had lost the day in which he did no good; when Adrian tells his enemy, that he had escaped by his being emperor; or Louis XII. that he is not to revenge the affront of the duke of Orleans. These are the first instances that happen to occur to me: I might recollect many, too many to insert in this essay; yet all are but few, compared to instances of cruelty and revenge: perhaps I am concerned that they are so rare; perhaps too I inwardly grieve that I am not in a situation to do the like. I am entertained, but not moved, when I read Voltaire's History of Charles XII. but I melt into tears on reading Hanway's character of his antagonist Peter the Great. The first is a story of a madman; the other of a father, friend, and benefactor of his people; whose character (as the author observes in the conclusion of it) will command the admiration of all succeeding generations; and I suppose

I lament, that God is pleased to advance to royalty so *Deformity.* few such instruments of good to mankind.

Again: "I am uneasy when I see a dog, a horse, or any other animal, ill-treated: for I consider them as endued with quick sense, and no contemptible share of reason; and that God gave man dominion over them, not to play the tyrant, but to be a good prince, and promote the happiness of his subjects. But I am much more uneasy at any cruelty to my own species; and heartily wish Procrustes disciplined in his own bed, and Phalaris in his bull. A man bruised all over in a boxing match, or cut to pieces in fighting a prize, is a shocking spectacle; and I think I could with less horror see a thousand fall in battle, than human nature thus depreciated and disgraced. Violence, when exerted in wantonness or passion, is brutality; and can be termed bravery only when it is sanctioned by justice and necessity.

"I have been in a situation to see not a little of the pomp and vanity, as well as of the necessity and misery, of mankind: but the last only affect me; and if, as a magistrate, I am ever guilty of partiality, it is in favour of the poor. When I am at church among my poor but honest neighbours in the country, and see them serious in performing the ceremonies prescribed, tears sometimes steal down my cheek, on reflecting, that they are doing and hearing many things they do not understand, while those who understand them better neglect them; that they, who labour and live hard, are more thankful to heaven than those who fare luxuriously on the fruits of their labour; and are keeping and repeating the fourth commandment at the very instant the others are breaking it.

"These are some of the sensations I feel; which I have freely and fairly disclosed, that the reader may judge how far I am an instance of a deformed person wanting natural affection. And I am a good subject of speculation; because all in me is nature: for to own the truth, I have taken but little pains (though I ought to have taken a great deal) to correct my natural defects.

"Lord Bacon's next position is, 'That deformed persons are extremely bold: first in their own defence, as being exposed to scorn; but in process of time by a general habit.' This probably is so among the inferior sort, who are in the way of continual insults; for a return of abuse is a natural weapon of self-defence, and in some measure justified by the law of retaliation: To upbraid a man with a personal defect, which he cannot help, is also an immoral act; and he who does it, has reason to expect no better quarter than to hear of faults, which it was in his own power not to commit. But I find this observation far from being verified in myself: an unbecoming bashfulness has been the consequence of my ill figure, and of the worse management of me in my childhood. I am always uneasy when any one looks steadfastly on so bad a picture; and cannot look with a proper confidence in the face of another. I have ever reproached myself with this weakness, but am not able to correct it. And it may be a disadvantage to a man in the opinion of those he converses with; for though true modesty is amiable, the false is liable to misconstruction: and when a man is out of countenance for no reason, it may be imagined that he has some bad reason for being so. In point

Deformity. point of assurance, I am indeed a perfect riddle to myself; for I, who feel a reluctance in crossing a drawing-room, or in opening my mouth in private company before persons with whom I am not well acquainted, find little in delivering my sentiments in public, and exposing my discourse, often as trifling as my person, to the ears of a thousand. From what cause this proceeds, I know not: it may be partly from hopes of wiping off any ill impression from my person by my discourse, partly from a sense of doing my duty, and partly from a security in public assemblies from any gross personal reflection.

“ Lord Bacon compares the case of deformed persons to that of eunuchs; ‘in whom kings were wont to put great trust as good spies and whisperers; for they that are envious towards all, are more obsequious and officious towards one.’ But, with submission to so good a judge of human nature, I own I can discover no uncommon qualification in them for spies; and very few motives to envy peculiar to themselves. Spies submit to that base and ungenerous office, either for the sake of interest or power: if for interest, it is to gratify their covetousness; if for power, their ambition or revenge; which passions are not confined to the eunuch or deformed, but indiscriminately seize all classes of men. Envy too may prompt a man to mean actions, in order to bring down the person envied to his own level; but if it is on account of superiority of fortune it will operate alike on men of all shapes. Eunuchs have but one peculiar motive to envy: but that (as Lord Bacon expresses it) makes them envious towards all; because it is for a pleasure which all but themselves may enjoy. Deformed persons are deprived only of beauty and strength, and therefore those alone are to be deemed the extraordinary motives to their envy; for they can no more be beautiful or strong than eunuchs be successful lovers. As to myself, whatever sparks of envy might be in my constitution, they are now entirely extinguished; for, by frequent and serious reflections, I have long been convinced of the small value of most things which men value the most.

“ There is another passion to which deformed persons seem to be more exposed than to envy; which is jealousy: for being conscious that they are less amiable than others, they may naturally suspect that they are less beloved. I have the happiness to speak this from conjecture, and not from experience; for it was my lot, many years ago, to marry a young lady, very piously educated, and of a very distinguished family, and whose virtues are an honour to her family and her sex: so that I had never any trial of my temper, and can only guess at it by emotions I have felt in my younger days; when ladies have been more liberal of

their smiles to those whom I thought, in every respect Deformity. but person, my inferiors.”

The most useful inference from all this to a deformed person is, to be upon his guard against those frailties to which he is more particularly exposed; and to be careful, that the outward frame do not distort the soul. *Orandum est* (says Juvenal), *ut sit mens sana in corpore sano*, “ Let us pray for a sound mind in a healthy body:” and every deformed person should add this petition, *ut sit mens recta in corpore curvo*, for “ an upright mind in a crooked one.” And let him frequently apply to himself this article of self-examination, *Lenior et melior sis, accedente senecta?* “ As age approaches, do your temper and morals improve?” It is a duty peculiarly incumbent; for if beauty adds grace to virtue itself, vice must be doubly hideous in deformity.

Ridicule and contempt are a certain consequence of deformity; and therefore what a person cannot avoid, he should learn not to regard. He should bear it like a man; forgive it as a Christian; and consider it as a philosopher. And his triumph will be complete, if he can exceed others in pleasantry on himself. Wit will give over when it sees itself outdone; and so will malice when it finds it has no effect: and if a man’s behaviour afford no cause of contempt, it will fall upon those who condemn him without cause.

Instead of repining, therefore, a deformed person ought to be thankful to Providence for giving him such a guard to his virtue and repose. Thousands are daily ruined by a handsome person; for beauty is a flower that every one wants to gather in its bloom, and spares no pains or stratagem to reach it. All the poetical stories concerning it have their moral. A Helen occasions war and confusion; the Hyacinth and Ganymedes are seized on for catamites; the Endymions and Adonises for gallants; Narcissus can admire nobody but himself, and grows old before he is cured of that passion. Who is a stranger to the story of Lucretia killing herself for her violated chastity? or of Virginia killed by her father to preserve it? In those circumstances, says Juvenal, she might wish to change persons with Rutila, the only lady we know among the ancients celebrated for a hump-back. The handsomest men are chosen for eunuchs and gallants; and when they are caught in exercising the last function, both (B) Horace and Juvenal inform you of the penalties and indignities they undergo. Silius (C) was converted by the insatiable Messalina into a husband; and Sporus, by the monster Nero, into a wife. The last mentioned poet shows that praying for beauty is praying for a curse; and (D) Persius refuses to join in such a prayer: and has not the deformed person reason to thank his stars, which have placed him

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(B) Hic se præcipitem tecto dedit: ille flagellis
Ad mortem cæsus: fugiens hic decedit acrem
Prædonum in turbam: dedit hic pro corpore nummos:
Hunc perminxerunt calones: quin etiam illud
Accidit, ut cuidam testes caudamque falacem
Demeteret ferrum.—*Hor. Sat. ii. lib. i.*
—Quosdam mœchos et mugilis intrat. *Juv. ib.*

(C) — Optimus hic et formosissimus idem
Gentis Patriciæ rapitur miser extingendus
Messalinæ oculis.—*Juv. Sat. x.*

(D) Hunc optent generum Rex et Regina: puellæ
Hunc rapiant: quicquid calcaverit hic, rosa fiat:
Ast ego nutrici non mando vota; negato
Jupiter hæc illi.—*Pers. Sat. ii.*

Deformity more out of danger than even virtue could? for that could not guard a Joseph, an (E) Hippolytus, a Bellerophon, and others, against the revenge of slighted love.

Another great advantage of deformity is, that it tends to the improvement of the mind. A man that cannot shine in his person, will have recourse to his understanding; and attempt to adorn that part of him, which alone is capable of ornament. When his ambition prompts him to begin, with Cowley, to ask himself this question,

What shall I do to be for ever known,
And make the age to come my own?

On looking about him, he will find many avenues to the temple of fame barred against him; but some are still open through that of virtue; and those, if he has a right ambition, he will most probably attempt to pass. The more a man is inactive in his person, the more his mind will be at work; and the time which others spend in action, he will pass in study and contemplation: by these he may acquire wisdom; and by wisdom, fame. The name of Socrates is as much founded as those of Alexander and Cæsar; and is recorded in much fairer characters. He gained renown by wisdom and goodness; they by tyranny and oppression; he by instructing, they by destroying, mankind: and happy it is, that their evil deeds were confined to their lives; while he continues to instruct us to this day. A deformed person will naturally consider where his strength and his foible lie: and as he is well acquainted with the last, he will easily find out the first; and must know, that (if it is anywhere) it is not like Samson's, in the hair; but must be in the lining of the head. He will say to himself, "I am weak in person; unable to serve my country in the field, I can acquire no military glory; but I may, like Socrates, acquire reputation by wisdom and probity: let me therefore be wise and honest. My figure is very bad; and I should appear but ill as an orator either in the pulpit or at the bar: let me therefore pass my time in my study, either in reading what may improve myself, or in writing what may entertain or instruct others. I have not the strength of Hercules, nor can I rid the world of so many monsters; but perhaps I may get rid of some that infest myself. If I cannot draw out Cacus from his den, I may pluck the villain from my own breast. I cannot cleanse the stable of Augeas: but I may cleanse my own heart from filth and impurity: I may demolish the hydra of vices within me; and should be careful too, that while I lop off one, I do not suffer more to grow up in its stead. Let me be serviceable in any way that I can: and if I am so, it may, in some measure, be owing to my deformity; which at least should be a restraint on my conduct, lest my conduct make me more deformed."

Few persons have a house entirely to their mind; or the apartments in it disposed as they could wish.

And there is no deformed person, who does not wish that his soul had a better habitation; which is sometimes not lodged according to its quality. Lord Clarendon says of Sir Charles Cavendish (brother to the marquis of Newcastle), that he was a man of the noblest and largest mind, though of the least and most inconvenient body that lived. And every body knows, that the late prince of Orange had many amiable qualities. Therefore, in justice to such persons, we must suppose that they did not repine that their tenements were not in a more regular style of architecture. And let every deformed person comfort himself with reflecting, that though his soul hath not the most convenient and beautiful apartment, yet that it is habitable; that the accommodation will serve as an inn upon the road; that he is but tenant for life, or (more properly) at will; and that, while he remains in it, he is in a state to be envied by the deaf, the dumb, the lame, and the blind.

DEFOSSION (*Defossio*), the punishment of burying alive, inflicted among the Romans on vestal virgins guilty of incontinency. It is also a custom among the Hungarians to inflict this punishment on women convicted of adultery. Heretics were also punished in this manner. See *BURYING-ALIVE*.

DEGENERATION, or DEGENERATING, in general, denotes the growing worse, or losing some valuable qualities whereof a thing was formerly possessed. Some naturalists have been of opinion, that things are capable of degenerating into quite a distinct species; but this is a mere chimera. All that happens in the degeneration of a plant, for instance, is the losing its usual beauty, colour, smell, &c. a circumstance entirely owing to its being planted in an improper soil, climate, &c.

DEGLUTITION, the action of swallowing. See *ANATOMY Index*.

DEGRADATION, in our law-books called *disgradation* and *deposition*, the act of depriving or stripping a person for ever of a dignity or degree of honour, and taking away the title, badge, and privileges thereof.

The degradation of a peer, a priest, a knight, a gentleman, an officer, &c. are performed with divers ceremonies. That which anciently obtained in degrading a person from his nobility is very curious. It was practised in the time of Francis I. upon Captain Fangel, who had in a cowardly manner given up Fontarabia, whereof he was governor. On this occasion, 20 or 30 cavaliers, without blemish or reproach, were assembled; before whom the gentleman was accused of treason and breach of faith by a king at arms. Two scaffolds were erected; the one for the judges, heralds, and pursuivants; and the other for the guilty cavalier, who was armed at all points, and his shield placed on a stake before him, reversed with the point upwards. On one side assisted 12 priests in surplices, who sung the vigils of the dead. At the close of each psalm they made a pause, during which the officers of arms

(E) ———— Quid profuit olim
Hippolyto grave propositum? Quid Bellerophonti
Erubuit nempe hæc, seu fastidia repulsa:

Nec Sthenobœa minus quam Cressa excaudit, et se
Concussere ambæ. ———— *Juv. Sat. x.*

Degradation.

arms stripped the condemned of some piece of his armour, beginning with the helmet, and proceeding thus till he was quite disarmed; which done, they broke his shield in three pieces with a hammer. Then the king at arms emptied a basin of hot water on the criminal's head; and the judges, putting on mourning habits, went to the church. This done, the degraded was drawn from off the scaffold with a rope tied under his arm-pits, laid on a bier, and covered with mortuary clothes; the priest singing some of the prayers for the dead; and then he was delivered to the civil judge and the executioner of justice.

For a more domestic instance: Sir Andrew Harcla, earl of Carlisle, being attainted and convicted of treason, 18 Edw. II. *coram rege*: after judgment was pronounced on him, his sword was broken over his head, and his spurs hewn off his heels; Sir Anthony Lucy the judge saying to him, "Andrew, now thou art no knight, but a knave." By stat. 13 Car. II. William Lord Moulton, Sir Henry Mildmay, and others, were degraded from all titles of honour, dignities, and pre-eminences, and prohibited to bear or use the title of lord, knight, esquire, or gentleman, or any coat of arms, for ever afterwards. It has been maintained that the king may degrade a peer; but it appears from late authorities, that he cannot be degraded but by act of parliament.

As to ecclesiastics, we have an instance of degradation before condemnation to death, in the eighth century, at Constantinople. It is in the person of the patriarch Constantine, whom Constantine Copronymus caused to be executed. He was made to ascend the ambo; and the patriarch Nicetas sent some of his bishops to strip him of the pallium, and anathematized him: then they made him go out of the church backwards.

But we have a much later instance in our own history: When Cranmer, archbishop of Canterbury, was degraded by order of Queen Mary, they dressed him in episcopal robes, made only of canvas, put the mitre on his head, and the pastoral staff in his hand; and in this attire showed him to the people. Which done, they stripped him again piece by piece. At present they do not stand so much on the ceremony of degradation in order to the putting a priest to death; by reason of the delays and difficulties that it would occasion. Pope Boniface pronounced that six bishops were required to degrade a priest; but the difficulty of assembling so many bishops rendered the punishment frequently impracticable. In England, a priest, after having been delivered to his ordinary, if he cannot purge himself of the crime laid at his door, his gown and other robes are stripped over his ears by the common hangman; by which he is declared divested of his orders.

It is decided, however, that degradation does not efface the priestly character. Degradation only seems to differ from deposition in a few ignominious ceremonies which custom has added thereto. Accordingly, in the business of Arnoul archbishop of Rheims, sentenced in the council of Orleans in 991, it was deliberated what form they should follow in the deposition; whether that of the canons, that is, simple deposition; or that of custom, viz. degradation. And it was declared, that he should surrender the ring, pastoral staff,

and pallium, but that his robes should not be torn off. In effect, the canons prescribe no more than a mere reading of the sentence. It is the rest, therefore, added thereto by custom, viz. the stripping off the ornaments, and the tearing the pontifical vestments, that properly constitute degradation.

DEGRADATION, in *Painting*, expresses the lessening the appearance of distant objects in a landscape, in the same manner as they would appear to an eye placed at that distance from them.

DEGREE, in *Geometry*, a division of a circle, including a three hundred and sixtieth part of its circumference.

DEGREE of *Latitude*. See LATITUDE.

DEGREE of *Longitude*. See LONGITUDE.

A degree of the meridian on the surface of the globe is variously determined by various observers. Mr Picart measured a degree in the latitude of $49^{\circ} 21'$, and found it equal to 57,060 French toises. But the French mathematicians, who have lately examined Mr Picart's operations, assure us, that the degree in that latitude is 57,183 toises. Our countryman, Mr Norwood, measured the distance between London and York, and found it 95,751 English feet; and finding the difference of latitudes $2^{\circ} 28'$, determined the quantity of one degree to be 367,196 English feet, or 69 English miles and 288 yards. Mr Maupertuis measured a degree in Lapland, in the latitude of $66^{\circ} 20'$, and found it 57,438 toises. A degree was likewise measured at the equator by other French mathematicians, and found to contain 56,767.8 toises. Whence it appears, that the earth is not a sphere, but an oblate spheroid.

DEGREE, in the civil and canon law, denotes an interval in kinship, by which proximity and remoteness of blood are computed. See CONSANGUINITY and DESCENT.

DEGREES, in *Music*, are the little intervals whereof the concords or harmonical intervals are composed.

DEGREE, in universities, denotes a quality conferred on the students or members thereof, as a testimony of their proficiency in the arts or sciences, and entitling them to certain privileges.

DEJANIRA, in fabulous history, daughter of Oeneus king of Ætolia, and wife to Hercules. The centaur Nessus endeavouring to ravish her, was slain by Hercules with a poisoned arrow. Nessus, when dying, gave his bloody shirt to Dejanira; assuring her, that it was a sovereign remedy to cure her husband if ever he proved unfaithful. Some time after, Dejanira thinking she had reason to suspect his fidelity, sent him the shirt: which he had no sooner put on, than he was seized with the most excruciating torments. Being unable to support his pains, he retired to Mount Oeta, and erecting a pile of wood set fire to it, and threw himself into the flames; upon which Dejanira killed herself in despair.

DEJECTION, in *Medicine*, the act of voiding the excrements by the anus. See ANATOMY, N^o 93.

DEJECTION, in *Astrology*, is applied to the planets when in their detriment, as astrologers speak, i. e. when they have lost their force or influence, as is pretended, by reason of their being in opposition to some others which check and counteract them. Or it is used when a planet is in a sign opposite to that in which it has its greatest effect or influence, which is called

Degradation
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Dejection.

Deification its exaltation. Thus, the sign Aries being the exaltation of the sun, the opposite sign Libra is its dejection.

Deism.

DEIFICATION, in antiquity. See ΑΡΟΤΗΟΙΣ.

DEIPHON, in fabulous history, a brother of Triptolemus, son of Celeus and Metanira. When Ceres travelled over the world, she stopped at his father's court, and undertook to nurse him and bring him up. To reward the hospitality of Celeus, the goddess began to make his son immortal, and every evening she placed him on burning coals to purify him from whatever mortal particles he still possessed. The uncommon growth of Deiphon astonished Metanira, who wished to see what Ceres did to make him so vigorous. She was frightened to see her son on burning coals; and the shrieks that she uttered disturbed the mysterious operations of the goddess, and Deiphon perished in the flames.

DEISCAL, in the ancient British customs, the name of a ceremony originally used in the druidical worship, and retained in many places down to a very late period, as a civil ceremony towards persons of particular distinction. The temples of the ancient Britons were all circular; and the druids, in performing the public offices of their religion, never neglected to make three turns round the altar, accompanied by all the worshippers. This practice was so habitual to the ancient Britons, that it continued in some places many ages after the druids and their religion were both destroyed. In the Scottish isles, the vulgar never come to the ancient sacrificing and fire-hallowing cairns, but they walk three times round them, from east to west, according to the course of the sun. This sanctified tour, or round by the south, is called *deiscal*, from *deas* or *deis*, "the right hand," and *soil* or *ful*, "the sun;" the right hand being ever next the heap or cairn. In the same isles it is the custom and fashion of the people to testify their respect for their chieftains, the proprietors of their several isles, and other persons of distinction, by performing the deiscal round them in the same manner. A gentleman giving an account of his reception in one of the Western islands, of which he was proprietor, describes the ceremony of the deiscal in this manner: "One of the natives would needs express his high esteem for my person, by making a turn round about me sun-ways, and at the same time blessing me, and wishing me all happiness. But I bid him let alone that piece of homage, telling him I was sensible of his good meaning towards me. But this poor man was very much disappointed, as were also his neighbours; for they doubted not but this ancient ceremony would have been very acceptable to me; and one of them told me that this was a thing due to my character from them, as to their chief and patron; and that they could not, and would not, fail to perform it."

DEISM, the doctrine or belief of the deists. Deism, from *Deos*, *God*, may properly be used to denote natural religion, as comprehending those truths which have a real foundation in reason and nature; and in this sense it is so far from being opposite to Christianity, that it is one great design of the gospel to illustrate and enforce it. Thus some of the deistical writers have affected to use it. But deism more precisely signifies that system of religion, relating both to doctrine and practice, which every man is to discover

himself by the mere force of natural reason, independent of all revelation, and exclusive of it; and this religion Dr Tindal and others pretend is so perfect, as to be incapable of receiving any addition or improvement even from divine revelation.

DEISTS, a class of people known also under the denomination of *Free-thinkers*, whose distinguishing character it is, not to profess any particular form or system of religion; but only to acknowledge the existence of a god, and to follow the light and law of nature, rejecting revelation, and opposing Christianity.

This name seems to have been first assumed as the denomination of a party about the middle of the 16th century, by some gentlemen in France and Italy, who were desirous of thus disguising their opposition to Christianity by a more honourable appellation than that of atheists. Virot, an eminent reformer, mentions certain persons, in his epistle dedicatory prefixed to the second tome of his *Instruction Chretienne*, published in 1563, who called themselves by a new name, that of *Deists*. These, he tells us, professed to believe in God, but showed no regard to Jesus Christ, and considered the doctrine of the apostles and evangelists as fables and dreams. He adds, that they laughed at all religion, though they outwardly conformed to the religion of those with whom they lived, or whom they wished to please, or feared to offend. Some, he observes, professed to believe the immortality of the soul; others denied both this doctrine and that of providence. Many of them were considered as persons of acute and subtle genius, and took pains in disseminating their notions.

The deists hold, that, considering the multiplicity of religions, the numerous pretences to revelation, and the precarious arguments generally advanced in proof thereof, the best and surest way is to return to the simplicity of nature and the belief of one God; which is the only truth agreed to by all nations. They complain, that the freedom of thinking and reasoning is oppressed under the yoke of religion; and that the minds of men are ridden and tyrannized by the necessity imposed on them of believing inconceivable mysteries; and contend that nothing should be required to be assented to or believed but what their reason clearly conceives.

The distinguishing character of modern deists is, that they reject all revealed religion, and discard all pretences to it as the effects of imposition or enthusiasm. They profess a regard for natural religion, though they are far from being agreed in their notions concerning it. They are classed by some of their own writers into mortal and immortal deists: the latter acknowledging a future state; and the former denying it, or representing it as very uncertain.

Dr Clarke distinguishes four sorts of deists. 1. Those who pretend to believe the existence of an eternal, infinite, independent, intelligent Being, who made the world, without concerning himself in the government of it. 2. Those who believe the being and natural providence of God, but deny the difference of actions, as morally good or evil, resolving it into the arbitrary constitution of human laws; and therefore they suppose that God takes no notice of them. With respect to both these classes, he observes that their opinions can consistently terminate in nothing but downright atheism.

Deists
||
Delaware.

atheism. 3. Those who have right apprehensions concerning the nature, attributes, and all-governing providence of God, seem also to have some notion of his moral perfections; though they consider them as transcendent, and such in nature and degree, that we can form no true judgment, nor argue with any certainty concerning them: but they deny the immortality of human souls; alleging that men perish at death, and that the present life is the whole of human existence. 4. Those who believe the existence, perfections, and providence of God, the obligations of natural religion, and a state of future retribution, on the evidence of the light of nature, without a divine revelation; such as these, he says, are the only true deists; but their principles, he apprehends, should lead them to embrace Christianity; and therefore he concludes that there is now no consistent scheme of deism in the world.

The first deistical writer of any note that appeared in this country was Herbert baron of Cherbury. He lived and wrote in the 17th century. His book *De Veritate* was first published at Paris in 1624. This, together with his book *De Causis Errorum*, and his treatise *De Religione Laici*, were afterwards published in London. His celebrated work *De Religione Gentilium* was published at Amsterdam in 1663 in 4to, and in 1700 in 8vo, and an English translation of it was published at London in 1705. As he was one of the first that formed deism into a system, and asserted the sufficiency, universality, and absolute perfection of natural religion, with a view to discard all extraordinary revelation as useless and needless, we shall subjoin the five fundamental articles of this universal religion.— They are these: 1. That there is one supreme God. 2. That he is chiefly to be worshipped. 3. That piety and virtue are the principal part of his worship. 4. That we must repent of our sins; and if we do so, God will pardon them. 5. That there are rewards for good men and punishments for bad men, both here and hereafter. Our own age has produced a number of advocates in the same cause; and however they may have differed among themselves, they have been agreed in their attempts of invalidating the evidence and authority of divine revelation. We might mention Hobbes, Blount, Toland, Collins, Woollaston, Tindal, Morgan, Chubb, Lord Bolingbroke, Hume, &c. Some have also added Lord Shaftesbury to the number.

But the friends of Christianity have no reason to regret the free and unreserved discussion which their religion has undergone. Objections have been stated and urged in their full force, and as fully answered; argument and raillery have been repelled; and the controversy between Christians and deists has called forth a great number of excellent writers, who have illustrated both the doctrines and evidence of Christianity in a manner that will ever reflect honour on their names, and be of lasting service to the cause of genuine religion and the best interests of mankind.

DEITY, *Godhead*; a common appellation given to God; and also by the poets to the heathen gods and goddesses.

DELAWARE, a province of North America, situated on a river of the same name.

The Dutch, under the pretended purchase made by

Henry Hudson, took possession of the lands on both sides the river Delaware; and as early as the year 1623 built a fort at the place, which has since been called *Gloucester*. In 1627, by the influence of William Ufeling, a respectable merchant in Sweden, a colony of Swedes and Finns came over, furnished with all the necessaries for beginning a new settlement, and landed at Cape Henlopen; at which time the Dutch had wholly quitted the country. The Dutch, however, returned in 1630, and built a fort at Lewistown, by them named *Hoarkill*. The following year the Swedes built a fort near Wilmington, which they called *Christein* or *Christiana*. Here also they laid out a small town, which was afterwards demolished by the Dutch. The same year they erected a fort higher up the river, upon Tenecum island, which they called *New Gottenburg*: they also about the same time built forts at Chetter, Elsinburgh, and other places. John Prinz then governed the Swedes, who, in 1654, deputed his son-in-law, John Paggioa, and returned to Sweden. Paggioa soon followed his father-in-law to his native country, and John Ryfing succeeded to the government. In 1655, the Dutch, under the command of Peter Stuyvesant, arrived in Delaware river, from New Amsterdam (New York), in seven vessels, with 6 or 700 men. They dispossessed the Swedes of their forts on the river, and carried the officers and principal inhabitants prisoners to New Amsterdam, and from thence to Holland. The common people submitted to the conquerors, and remained in the country. On the first of October 1664, Sir Robert Carr obtained the submission of the Swedes on Delaware river. Four years after, Col. Nicolls, governor of New York, with his council, on the 21st of April, appointed a scout and five other persons to assist Capt. Carr in the government of the country. In 1672, the town of Newcastle was incorporated by the government of New York, to be governed by a bailiff and six assistants; after the first year, the four oldest were to leave their office, and four others to be chosen. The bailiff was president, with a double vote; the constable was chosen by the bench. They had power to try causes not exceeding 10l. without appeal. The office of scout was converted into that of sheriff, who had jurisdiction in the corporation and along the river, and was annually chosen. They were to have a free trade, without being obliged to make entry at New York, as had formerly been the practice. Wampum was at this time the principal currency of the country. Governor Lovelace of New York, by proclamation, ordered that four white grains and three black ones should pass for the value of a shilling or penny. This proclamation was published at Albany, Esopus, Delaware, Long-island, and the parts adjacent. In 1674 Charles II. by a second patent, dated June 29th, granted to his brother duke of York all that country called by the Dutch *New Netherlands*, of which the three counties of Newcastle, Kent, and Sussex, were a part. In 1683, the duke of York, by deed dated Aug. 24th, sold to William Penn the town of Newcastle, with the district of 12 miles round the same; and by another deed of the same date, granted to him the remainder of the territory, which till the revolution was called the *Three Lower Counties*. These three counties were considered as a part of Pennsylvania in matters of government.

Delaware.

Delaware. vernment. The same governor presided over both: but the assembly and courts of judicature were different; different as to their constituent members, but in form nearly the same. At the late revolution they became a distinct territory, called

The *Delaware State*. This state is bounded on the north by the territorial line which divides it from Pennsylvania, on the east, by Delaware river and bay; on the south, by a due east and west line, from Cape Henlopen, in lat. 38. 30. to the middle of the peninsula; and on the west by Maryland. The climate is in many parts unhealthy. The land is generally low and flat, which occasions the waters to stagnate, and the consequence is, the inhabitants are subject to intermitents.

The Delaware state is divided into three counties, viz. Newcastle, Kent, Suffex: the chief towns of which are, Wilmington and Newcastle, Dover, Milford, and Lewistown.

Three rivers, the Choptank, Nanticok, and Pocomoke, have their sources in this state, and are navigable for vessels of 50 or 60 tons, 20 or 30 miles into the country. They all run a westerly course into Chesapeak bay. The fourth part of the state is a low flat country, and a considerable portion of it lies in forest. What is under cultivation is chiefly barren, except in Indian corn, of which it produces fine crops. In some places rye and flax may be raised, but wheat is a foreigner in these parts. Where nature is deficient in one resource, she is generally bountiful in another. This is verified in the tall thick forests of pines which are manufactured into boards, and exported in large quantities into every sea-port in the three adjoining states. As you proceed north, the soil is more fertile, and produces wheat in large quantities, which is the staple commodity of the state. They raise all the other kinds of grain common to Pennsylvania. The state has no mountain in it, except Thunder Hill, in the western part of Newcastle county, and is generally level, except some small parts, which are stony and uneven. The trade of this state, which is inconsiderable, is carried on principally with Philadelphia, in boats and shallops. The articles exported are principally wheat, corn, lumber, and hay.

There are in this state, 21 Presbyterian congregations, belonging to the synod of Philadelphia: seven Episcopal churches; six congregations of Baptists, containing about 218 souls; four congregations of the people called *Quakers*; besides a Swedish church at Wilmington, which is one of the oldest churches in the United States, and a number of Methodists. All these denominations have free toleration by the constitution, and live together in harmony.

In the convention held at Philadelphia, in the summer of 1787, the inhabitants of Delaware were reckoned at 37,000, which is about 26 for every square mile. There is no obvious characteristic difference between the inhabitants of this state and the Pennsylvanians. See PENNSYLVANIA.

Under the present constitution, the legislature is divided into two distinct branches, which together are styled *The General Assembly of Delaware*. One branch, called the *House of Assembly*, consists of seven representatives from each of the three counties, chosen annually by the freeholders. The other branch, called the

Council, consists of nine members, three for a county, Delaware. who must be more than 25 years of age, chosen likewise by the freeholders. A rotation of members is established by displacing one member for a county at the end of every year. All money bills must originate in the house of assembly, but they may be altered, amended, or rejected by the legislative council. A president or chief magistrate is chosen by the joint ballot of both houses, and continues in office three years; at the expiration of which period, he is ineligible the three succeeding years. If this office becomes vacant during the recess of the legislature, or he is unable to attend to business, the speaker of the legislative council is vice-president for the time; and in his absence the powers of the president devolve upon the speaker of the assembly. A privy council, consisting of four members, two from each house, chosen by ballot, is constituted to assist the chief magistrate in the administration of the government. The three justices of the supreme court, a judge of admiralty, and four justices of the common pleas and orphans courts, are appointed by the joint ballot of the president and general assembly, and commissioned by the president to hold their offices during good behaviour. The president and privy council appoint the secretary, the attorney-general, registers for the produce of wills, registers in chancery, clerks of the common pleas, and orphans courts, and the clerks of the peace, who hold their offices during five years, unless sooner removed for mal-conduct. The house of assembly name 24 persons in each county for justices of peace, from which number the president, with the advice of his council, appoints and commissions twelve, who serve for seven years, unless sooner dismissed for mal-administration. The members of the legislative and privy-councils are justices of the peace for the whole state.—The courts of common pleas and orphans courts have power to hold chancery courts in certain cases. The clerk of the supreme court is appointed by the chief justice, and the recorders of deeds by the justices of the common pleas, for five years, unless sooner dismissed. All the military and marine officers are appointed by the general assembly. The court of appeals consists of seven persons: the president, who is a member, and presides by virtue of his office, and six others, three to be chosen by the legislative council, and three by the house of assembly. To this court appeals lie from the supreme court, in all matters of law and equity. The judges hold their office during good behaviour.

The justices of the several courts, the members of the privy council, secretary, trustees of the loan office, clerks of the common pleas, and all persons concerned in army or navy contracts, are ineligible to either house of assembly. Every member, before taking his seat, must take the oath of allegiance, and subscribe a religious test, declaring his belief in God the Father, in Jesus Christ, and the Holy Ghost; and in the inspiration of the Scriptures.

The house of assembly have the privilege of impeaching delinquent officers of government; and impeachments are to be prosecuted by the attorney-general, or other persons appointed by the assembly, and tried before the legislative council. The punishment may extend to temporary or perpetual disability to hold

^{Delegate}
_{Dele.} hold offices under government, or to such other penalties as the laws shall direct.

There is, in Delaware, no establishment of one religious sect in preference to another; nor can any preacher or clergyman, while in his pastoral employment, hold any civil office in the state.

DELEGATE, in a general sense, a deputy or commissioner.

DELEGATES, commissioners appointed by the king under the great seal, to hear and determine appeals from the ecclesiastical court.

Court of DELEGATES, the great court of appeal in all ecclesiastical causes. These delegates are appointed by the king's commission under his great seal, and issuing out of chancery, to represent his royal person, and hear all appeals to him made by virtue of the statute 25 Henry VIII. c. 19. This commission is usually filled with lords spiritual and temporal, judges of the courts at Westminster, and doctors of the civil law. Appeals to Rome were always looked upon by the English nation, even in the times of Popery, with an evil eye, as being contrary to the liberty of the subject, the honour of the crown, and the independence of the whole realm; and were first introduced, in very turbulent times, in the 16th year of King Stephen (A. D. 1151), at the same period (Sir Henry Spelman observes) that the civil and canon laws were first imported into England. But in a few years after, to obviate this growing practice, the constitutions made at Clarendon, 11 Hen. II. on account of the disturbances raised by Archbishop Becket and other zealots of the holy see, expressly declare, that appeals in causes ecclesiastical ought to lie from the archdeacon to the diocesan; from the diocesan to the archbishop of the province; and from the archbishop to the king; and are not to proceed any farther without special license from the crown. But the unhappy advantage that was given in the reign of King John, and his son Hen. III. to the encroaching power of the Pope, who was ever vigilant to improve all opportunities of extending his jurisdiction to Britain, at length rivetted the custom of appealing to Rome in causes ecclesiastical so strongly, that it never could be thoroughly broken off, till the grand rupture happened in the reign of Hen. VIII. when all the jurisdiction usurped by the Pope in matters ecclesiastical was restored to the crown, to which it originally belonged; so that the statute 25 Hen. VIII. was but declaratory of the ancient law of the realm. But in case the king himself be party in any of these suits, the appeal does not then lie to him in chancery, which would be absurd; but, by the 24 Henry VIII. c. 12. to all the bishops of the realm, assembled in the upper house of convocation.

DELEGATION, a commission extraordinary given by a judge to take cognisance of, and determine some cause which ordinarily does not come before him.

DELEGATION, in Scots Law. See *LAW INDEX*.

DELEN, DIRK VAN, an eminent painter of architecture and perspective, was born at Heusden, but in what year is not known. He was a disciple of Francis Hals, in whose school he practised to paint those particular subjects which were most esteemed by that master, such as portraits and conversations; and by that means he acquired the skill to design figures with a great deal of spirit and correctness. But his

VOL. VII. Part I.

predominant inclination directed him to paint architecture and perspective; and those he studied with so much care, as to make his works admired and coveted through the Low Countries. His subjects were the insides of churches, filled with figures; grand temples; magnificent saloons and galleries, with people assembled at concerts of music, feasting, or dancing. Those subjects he finished highly; his architecture was in a noble taste; and the figures were well designed, as well as grouped with a great deal of judgment. Several authors mention the performances of this master with large commendation, for the goodness of his invention, and neatness of his handling.

DELETERIOUS, an appellation given to things of a destructive or poisonous nature. See *POISON*.

DELFT, a town of the United Provinces, and capital of Delftland in Holland. It is a pretty large place, very clean and well built, with canals in the streets, planted on each side with trees. The public buildings, especially the town-house, are very magnificent. Here are two churches; in one is the tomb of the prince of Orange, who was assassinated; and in the other, that of Admiral Tromp. It has a fine arsenal, well furnished; is about two miles in circumference, and is defended against inundations by three dams or dikes. Here is made a prodigious quantity of fine earthen-ware called *delft-ware*; but the town has no other trade. It is pleasantly situated among the meadows on the river Shie, in E. Long. 4. 13. N. Lat. 32. 6.

DELFT-Ware, a kind of pottery of baked earth, covered with an enamel or white glazing, which gives it the appearance and neatness of porcelain. Some kinds of this enamelled pottery differ much from others, either in their sustaining sudden heat without breaking, or in the beauty and regularity of their forms, of their enamel, and of the painting with which they are ornamented. In general, the fine and beautiful enamelled potteries, which approach the nearest to porcelain in external appearance, are at the same time those which least resist a brisk fire. Again, those which sustain a sudden heat, are coarse, and resemble common pottery.

The basis of this pottery is clay, which is to be mixed, when too fat, with such a quantity of sand, that the earth shall preserve enough of its ductility to be worked, moulded, and turned easily; and yet that its fatness shall be sufficiently taken from it, that it may not crack or shrink too much in drying or in baking. Vessels formed of this earth must be dried very gently to avoid cracking. They are then to be placed in a furnace to receive a slight baking, which is only meant to give them a certain consistence or hardness. And, lastly, they are to be covered with an enamel or glazing, which is done, by putting upon the vessels thus prepared the enamel, which has been ground very fine, and diluted with water.

As vessels on which the enamel is applied are but slightly baked, they readily imbibe the water in which the enamel is suspended, and a layer of this enamel adheres to their surface; these vessels may then be painted with colours composed of metallic calces, mixed and ground with a fusible glass. When they are become perfectly dry, they are to be placed in the furnace included in cases of baked earth called *feggars*, and exposed

Delft-ware.

posed to a heat capable of fusing uniformly the enamel which covers them. This heat given to fuse the enamel being much stronger than that which was applied at first to give some consistence to the ware, is also the heat necessary to complete the baking of it. The furnace and colours used for painting this ware, are the same as those employed for porcelain. The glazing, which is nothing but white enamel, ought to be so opaque as not to show the ware under it. There are many receipts for making these enamels; but all of them are composed of sand or flints, vitrifying salts, calx of lead, and calx of tin; and the sand must be perfectly vitrified, so as to form a glass considerably fusible. Somewhat less than an equal part of alkaline salt, or twice its weight of calx of lead, is requisite to effect such vitrifications of sand. The calx of tin is not intended to be vitrified, but to give a white opaque colour to the mass; and one part of it is to be added to three or four parts of all the other ingredients taken together. From these general principles various enamels may be made to suit the different kinds of earthenware. To make the enamel, lead and tin are calcined together with a strong fire; and the sand is also to be made into a frit with the salt or ashes. The whole is then to be well mixed and ground together. The matter is then to be placed under the furnace, where it is melted and vitrified during the baking of the ware. It is next to be ground in a mill, and applied as above directed.

Chem. Dict.

The preparation of the white enamel is a very essential article in making delft-ware, and one in which many artists fail. M. Bosc. d'Antic, in a memoir concerning this kind of ware, published in the *Mem. des Sçavans Etran. tom. 6.* recommends the following proportions. A hundred pounds of calx of lead are to be mixed with about a seventh part of that quantity of calx of tin for the finest kind; a hundred, or a hundred and ten, pounds of fine sand; and about twenty or thirty pounds of sea-salt. Concerning the earth of which the ware is made, he observes, that pure clay is not a proper material when used alone. Different kinds of earth mixed together are found to succeed better. Pieces of ware made of clay alone are found to require too much time to dry; and they crack, and lose their form, unless they are made exceedingly thick. An addition of marle diminishes the contraction of the clay; renders it less compact; and allows the water to escape, without altering the form of the ware in drying. It affords also a better ground for the enamel; which appears more glossy and white than when laid on clay alone. The kinds of clay which are chiefly used in the composition of delft-ware, are the blue and green. A mixture of blue clay and marle would not be sufficiently solid, and would be apt to scale, unless it were exposed to a fire more intense than what is commonly used for the burning of delft-ware. To give a greater solidity, some red clay is added; which, on account of its ferruginous matter, possesses the requisite binding quality. The proportion of these ingredients vary in different works, according to the different qualities of the earths employed. Three parts of blue clay, two parts of red clay, and five parts of marle, form the composition used in several manufactories. M. d'Antic thinks, that the best delft-ware

might be made of equal parts of pure clay and pure calcareous earth; but this composition would require that the fire should be continued twice as long as it generally is.

Delia
Deliberative.

DELIA, in antiquity, a festival celebrated every fifth year in the island of Delos, in honour of Apollo. It was first instituted by Theseus, who at his return from Crete placed a statue there, which he had received from Ariadne. At the celebration they crowned the statue of the god with garlands, appointed a choir of music, and exhibited horse-races. They afterwards led a dance, in which they imitated by their motions the various windings of the Cretan labyrinth, from which Theseus had extricated himself by Ariadne's assistance.—There was another festival of the same name yearly celebrated by the Athenians in Delos. It also was instituted by Theseus, who, when he was going to Crete, made a vow, that if he returned victorious, he would yearly visit in a solemn manner the temple of Delos. The persons employed in this annual procession were called *Deliaistæ* and *Theori*. The ship, the same which carried Theseus, and had been carefully preserved by the Athenians, was called *Theoria* and *Delias*. When the ship was ready for the voyage, the priest of Apollo solemnly adorned the stern with garlands, and an universal lustration was made all over the city. The *Theori* were crowned with laurels, and before them proceeded men armed with axes, in commemoration of Theseus, who had cleared the way from Træzen to Athens, and delivered the country from robbers. When the ship arrived at Delos, they offered solemn sacrifices to the god of the island, and celebrated a festival to his honour. After this they retired to their ship and sailed back to Athens, where all the people of the city ran in crowds to meet them. Every appearance of festivity prevailed at their approach, and the citizens opened their doors, and prostrated themselves before the *Deliaistæ* as they walked in procession. During this festival it was unlawful to put to death any malefactor, and on that account the life of Socrates was prolonged for 30 days.

DELIA, a surname of Diana, because she was born in Delos.

DELIAC, (*Deliacus*), among the ancients, denoted a poulterer, or a person who sold fowls, fatted capons, &c. The traders in this way were called *Deliaci*; the people of the isle of Delos first practised this occupation. They also sold eggs, as appears from Cicero, in his *Academic Questions*, lib. iv. Pliny, lib. x. cap. 30. and Columella, lib. viii. cap. 8. likewise mention the *Deliaci*.

DELIACAL PROBLEM, a celebrated problem among the ancients, concerning the duplication of the cube.

DELIBAMENTA, in antiquity, a libation to the infernal gods, always offered by pouring downwards. See LIBATION.

JUS DELIBERANDI. See LAW Index.

DELIBERATIVE, an appellation given to a kind or branch of rhetoric, employed in proving a thing, or convincing an assembly thereof, in order to persuade them to put it in execution.

To have a DELIBERATIVE voice in the assembly, is when a person has a right to give his advice and his vote therein. In councils, the bishops have deliberative

Delict
||
Delli.

tive voices; those beneath them have only consultative voices.

DELICT, in Scots law, signifies such small offences or breaches of the peace as are punishable only by fine or short imprisonment.

DELINQUENT, a guilty person, or one who has committed some fault or offence for which he is punishable. See **BRITAIN**, N° 97.

DELIQUESCENT, in *Chemistry*, signifies the property which certain bodies have of attracting moisture from the air, and becoming liquid thereby. This property is never found but in saline substances, or matters containing them. It is caused by the great affinity which these substances have for water. The more simple they are, according to Mr Macquer, the more they incline to deliquescence. Hence acids, and certain alkalis, which are the most simple, are also the most deliquescent salts. Mineral acids are so deliquescent, that they strongly imbibe moisture from the air, even though they are already mixed with a sufficient quantity of water to be fluid. For this purpose, it is sufficient that they be concentrated only to a certain degree.—Many neutral salts are deliquescent, chiefly those whose bases are not saline substances. Salts formed by the vitriolic acid, with fixed or volatile alkalis, earths, or most metallic substances, are not deliquescent; although this acid is the strongest of all, and, when disengaged, attracts the moisture of the air most powerfully.

Though the immediate cause of deliquescence is the attraction of the moisture of the air, as we have already observed; yet it remains to be shown why some salts attract this moisture powerfully, and others, though seemingly equally simple, do not attract it at all. The vegetable alkali, for instance, attracts moisture powerfully; the mineral alkali, though to appearance equally simple, does not attract it at all. The acid of tartar by itself does not attract the moisture of the air; but if mixed with borax, which has a little attraction for moisture, the mixture is exceedingly deliquescent.—Some theories have been suggested, in order to account for these and other similar facts; but we are as yet too little acquainted with the nature of the atmosphere, and the relation its constituent parts have to those of terrestrial substances, to determine any thing with certainty on this head.

DELIQUIUM, or **DELIQUIUM Animi** (from *delinquo*, "I swoon"), a swooning or fainting away: called also *syncope*, *lipothymia*, *lipopsychia*, *eclipsis*, and *apophyxia*.

DELIQUIUM (from *deliquesco*, "to be dissolved"), in *Chemistry*, is the dissolution or melting of a salt by suspending it in a moist cellar.

Salt of tartar, or any fixed alkali, set in a cellar or other cool moist place, and in an open vessel, resolves or runs into a kind of liquor called by the older chemists oil of tartar *per deliquium*.

DELIRIUM (from *deliro*, "to rave or talk idly"). When the ideas excited in the mind do not correspond to the external objects, but are produced by the change induced on the common sensory, the patient is said to be delirious. See **MEDICINE Index**.

DELIVERY, or **CHILD-BIRTH**. See **MIDWIFERY**.

DELLI, or **DELHI**, a kingdom and city of the Mogul's empire, in Asia. The city is one of the ca-

pitals of the empire. The road between it and *Agra*, the other capital, is that famous alley or walk planted with trees by Jehin Ghir, and 150 leagues in length. Each half league is marked with a kind of turret; and at every stage there are little farays or caravanferas for the benefit of travellers. The road, though pretty good, has many inconveniences. It is not only frequented by wild beasts, but by robbers. The latter are so dexterous at casting a noose about a man's neck, that they never fail, if within reach, to seize and strangle him. They gain their point likewise by means of handsome women; who, feigning great distress, and being taken up behind the unwary traveller, choak him with the same snare.—The capital consists of three cities, built near one another. The first, now quite destroyed, is said to have had 52 gates: and to have been the residence of King Porus, conquered by Alexander the Great. The second, which is also in ruins, was demolished by Shah Jehan, to build *Jehan-abad* with the materials. This makes the third city, and joins the ruins of the second. This city stands in an open plain country, on the river *Jumna*, which rises in this province. It is encompassed with walls, except towards the river. These are of brick, flanked with round towers; but without a ditch, and terraced behind, four or five feet thick. The circumference of the walls may be about nine miles. The fortress, which is a mile and a half in circuit, has good walls and round towers, and ditches full of water, faced with stone. It is surrounded with fine gardens, and in it is the Mogul's palace. See **INDOSTAN**. E. Long. 79. 25. N. Lat. 28. 20.

DELMENHORST, a strong town of Germany, in the circle of Westphalia, and county of Oldenburgh, belonging to Denmark; seated on the river Delm near the Weser. E. Long. 8. 37. N. Lat. 53. 10.

DELOS, an island of the Archipelago, very famous in ancient history. Originally it is said to have been a floating island, but afterwards it became fixed and immoveable. It was held sacred on account of its being the birth-place of Apollo and Diana.—Anciently this island was governed by its own kings. Virgil mentions one Anius reigning here in the time of the Trojan war. He was, according to that poet, both king and high-priest of Apollo, and entertained Æneas with great kindness. The Persians allowed the Delians to enjoy their ancient liberties, after they had reduced the rest of the Grecian islands. In after ages, the Athenians made themselves masters of it; and held it till they were driven out by Mithridates the Great, who plundered the rich temple of Apollo, and obliged the Delians to side with him. Mithridates was in his turn driven out by the Romans, who granted the inhabitants many privileges, and exempted them from all sorts of taxes. At present it is quite abandoned; the lands being covered with ruins and rubbish in such a manner as to be quite incapable of cultivation. The inhabitants of Mycone hold it now, and pay but ten crowns land tax to the Grand Signior for an island which was once one of the richest in the world.—Strabo and Callimachus tell us that the island of Delos was watered by the river Inapus: but Pliny calls it only a spring; and adds, that its waters swelled and abated at the same time with those of the Nile. At present there is no river in the island, but one of the noblest springs

Delli
||
Delos.

Delos. springs in the world; bring twelve paces in diameter, and inclosed partly by rocks, and partly by a wall. Mount Cynthus, whence Apollo had the surname of *Cynthius*, is by Strabo placed near the city, and said to be so high, that the whole island was covered by its shadow; but our modern travellers speak of it as a hill of a very moderate height. It is but one block of granite of the ordinary sort, cut on that side which faced the city into regular steps, and inclosed on both sides by a wall. On the top of the mountain are still to be seen the remains of a stately building, with a mosaic pavement, many broken pillars, and other valuable monuments of antiquity. From an inscription discovered there some time ago, and which mentions a vow made to Serapis, Isis, and Anubis, some have conjectured, that on this hill stood a temple dedicated to these Egyptian deities, though nowhere mentioned in history.—The city of Delos, as is manifest from the magnificent ruins still extant, took up that spacious plain reaching from one coast to the other. It was well peopled, and the richest city in the Archipelago, especially after the destruction of Corinth; merchants flocking thither from all parts, both in regard of the immunity they enjoyed there, and of the convenient situation of the place between Europe and Asia, Strabo calls it one of the most frequented empories in the world; and Pliny tells us, that all the commodities of Europe and Asia were sold, purchased, or exchanged, there. It contained many noble and stately buildings; as the temples of Apollo, Diana, and Latona; the porticoes of Philip of Macedon, and Dionysius Eutyches; a gymnasium; an oval basin made at an immense expence, for the representation of sea-fights; and a most magnificent theatre. The temple of Apollo was, according to Plutarch, begun by *Eryfichon* the son of Cecrops; but afterwards enlarged and embellished at the common charge of all the states of Greece. Plutarch tells us, that it was one of the most stately buildings in the universe; and speaks of an altar in it, which, in his opinion, deserved a place among the wonders of the world. It was built with the horns of various animals, so artificially adapted to one another that they hanged together without any cement. This altar is said to have been a perfect cube; and the doubling it was a famous mathematical problem among the ancients. This went under the name of *Problema Deliacum*; and is said to have been proposed by the oracle, for the purpose of freeing the country from a plague. The distemper was to cease when the problem was solved.—The trunk of the famous statue of Apollo, mentioned by Strabo and Pliny, is still an object of great admiration to travellers. It is without head, feet, arms, or legs; but from the parts that are yet remaining, it plainly appears, that the ancients did not exaggerate when they commended it as a wonder of art. It was of gigantic size, though cut out of a single block of marble; the shoulders being six feet broad, and the thighs nine feet round. At a small distance from this statue lies, amongst confused heaps of broken columns, architraves, bases, chapiters, &c. a square piece of marble $15\frac{1}{2}$ feet long, ten feet nine inches broad, and two feet three inches thick: which undoubtedly served as a pedestal for this colossus. It bears in very fair characters this inscription in Greek, “The Naxians to Apollo.” Plutarch tells us, in the

life of Nicias, that he caused to be set up, near the temple of Delos, an huge palm-tree of brass, which he consecrated to Apollo; and adds, that a violent storm of wind threw down this tree on a colossal statue raised by the inhabitants of Naxos. Round the temple were magnificent porticoes built at the charge of various princes, as appears from inscriptions which are still very plain. The names of Philip king of Macedon, Dionysius Eutyches, Mithridates Euergetes, Mithridates Eupator, kings of Pontus, and Nicomedes king of Bithynia, are found on several pedestals.—To this temple the inhabitants of the neighbouring islands sent yearly a company of virgins to celebrate, with dancing, the festival of Apollo and his sister Diana, and to make offerings in the name of their respective cities.

So very sacred was the island of Delos held by the ancients, that no hostilities were practised here, even by the nations that were at war with one another, when they happened to meet in this place. Of this Livy gives an instance. He tells us, that some Roman deputies being obliged to put in at Delos, in their voyage to Syria and Egypt, found the galleys of Perseus king of Macedon, and those of Eumenes king of Pergamus, anchored in the same harbour, though these two princes were then making war upon one another.—Hence this island was a general asylum, and the protection extended to all kinds of living creatures; for this reason it abounded with hares, no dogs being suffered to enter it. No dead body was suffered to be buried in it, nor was any woman suffered to lie in there; all dying persons, and women ready to be delivered, were carried over to the neighbouring island of Rhœna.

DELPHI, in *Ancient Geography*, a town of Phocis, situated on the south-west extremity of Mount Parnassus. It was famous for a temple and oracle of that god, of which the following was said to be the origin: A number of goats that were feeding on Mount Parnassus, came near a place which had a deep and long perforation. The steam which issued from the hole seemed to inspire the goats, and they played and frisked about in such an uncommon manner, that the goatherd was tempted to lean on the hole, and see what mysteries the place contained. He was immediately seized with a fit of enthusiasm, his expressions were wild and extravagant, and passed for prophecies. This circumstance was soon known about the country, and many experienced the same enthusiastic inspiration. The place was revered; a temple was soon after erected in honour of Apollo; and a city built, which became the chief and most illustrious in Phocis. The influence of its god has controuled the councils of states, directed the course of armies, and decided the fate of kingdoms. The ancient history of Greece is full of his energy, and an early register of his authority. The circumjacent cities were the stewards and guardians of the god. Their deputies composed the famous Amphictyonic assembly, which once guided Greece.

The temple of Apollo, it is related, was at first a kind of cottage covered with boughs of laurel; but he was early provided with a better habitation. An edifice of stone was erected by Trophonius and Agamedes, which subsisted about 700 years, and was burned in the year 636 after the taking of Troy, and 548 before Christ. It is mentioned in the hymn to Apollo ascribed

Delphi. ascribed to Homer. An opulent and illustrious family, called *Alcmaonidae*, which had fled from Athens and the tyrant Hippias, contracted with the deputies for the building of a new temple, and exceeded their agreement. The front was raised with Parian marble, instead of the stone called *Porus*; which resembled it in whiteness, but was not so heavy. A Corinthian was the architect. The pediments were adorned with Diana, and Latona, and Apollo, and the Muses; the setting of Phœbus or the sun; with Bacchus, and the women called *Thyades*. The architraves were decorated with golden armour; bucklers suspended by the Athenians after the battle of Marathon, and shields taken from the Gauls under Brennus. In the portico were inscribed the celebrated maxims of the seven sages of Greece. There was an image of Homer, and in the cell was an altar of Neptune, with statues of the Fates, and of Jupiter and Apollo, who were surnamed *Leaders of the Fates*. Near the hearth, before the altar at which Neoptolemus the son of Achilles was slain by a priest, stood the iron chair of Pindar. In the sanctuary was an image of Apollo gilded. The inclosure was of great extent, and filled with treasures, in which many cities had consecrated tenths of spoil taken in war, and with the public donations of renowned states in various ages. It was the grand repository of ancient Greece, in which the labours of the sculptor and statuary, gods, heroes, and illustrious persons, were seen collected and arranged; the inequalities of the area of acclivity contributing to a full display of the noble assemblage.

The oracles were delivered by a priestess called Pythia, who received the prophetic influence in the following manner. A lofty tripod, decked with laurel, was placed over the aperture, whence the sacred vapour issued. The priestess, after washing her body and especially her hair, in the cold water of Castalia, mounted on it, to receive the divine effluvia. She wore a crown of laurel, and shook a sacred tree, which grew by. Sometimes she chewed the leaves; and the frenzy which followed may with probability be attributed to this usage, and the gentler or more violent symptoms to the quantity taken. In one instance the paroxysm was so terrible, that the priests and suppliants ran away, and left her alone to expire, it was believed, of the god. Her part was unpleasant; but, if she declined acting, they dragged her by force to the tripod. The habit of her order was that of virgins. The rules enjoined temperance and chastity, and prohibited luxury in apparel. The season of inquiry was in the spring, during the month called *Bulfus*; after which Apollo was supposed to visit the altars of the Hyperboreans.

The city of Delphi arose in the form of a theatre, upon the winding declivity of Parnassus, whose fantastic tops overshadowed it, like a canopy, on the north, while two immense rocks rendered it inaccessible on the east and west, and the rugged and shapeless Mount Cirphis defended it on the south. The foot of the last-named mountain was washed by the rapid *Pliftus*, which discharged itself into the sea at the distance of only a few leagues from the sacred city. This inaccessible and romantic situation, from which the place derived the name of Delphi (signifying, as explained in the glossaries, *solitary, alone*), was rendered still more

striking, by the innumerable echoes which multiplied every sound, and increased the ignorant veneration of visitants for the god of the oracle. The artful ministers of Apollo gradually collected such objects in the groves and temple as were fitted to astonish the senses of the admiring multitude. The splendor of marble, the magic of painting, the invaluable statues of gold and silver, represented (to use the language of antiquity) not the resemblance of an earthly habitation, but rather expressed the image of Olympus, adorned and enlightened by the actual presence of the gods.

The protection and superintendance of this precious depository of riches and superstition belonged to the Amphictyons, as already noticed. But the inhabitants of Delphi, who, if we may use the expression, were the original proprietors of the oracles, always continued to direct the religious ceremonies, and to conduct the important business of prophecy. It was their province alone to determine at what time, and on what occasion, the Pythia should mount the sacred tripod, to receive the prophetic steams by which she communicated with Apollo. When overflowing with the heavenly inspiration, she uttered the confused words, or rather frantic sounds, irregularly suggested by the impulse of the god; the Delphians collected these sounds, reduced them into order, animated them with sense, and adorned them with harmony. The Pythia, appointed and dismissed at pleasure, was a mere instrument in the hands of those artful ministers, whose character became so venerable and sacred, that they were finally regarded, not merely as attendants and worshippers, but as the peculiar family of the god. Their number was considerable, and never exactly ascertained, since all the principal inhabitants of Delphi, claiming an immediate relation to Apollo, were entitled to officiate in the rites of his sanctuary; and even the inferior ranks belonging to that sacred city were continually employed in dances, festivals, processions, and in displaying all the gay pageantry of an airy and elegant superstition.

Delphi was conveniently situated for the conflux of votaries, lying in the centre of Greece, and, as was then imagined, of the universe. It was customary for those who consulted the oracle to make rich presents to the god: his servants and priests feasted on the numerous victims which were sacrificed to him; and the rich magnificence of his temple had become proverbial even in the age of Homer. In after times, Crœsus, the wealthiest of monarchs, was particularly munificent in his donations. This sacred repository of opulence was therefore often the object of plunder. Neoptolemus was slain, while sacrificing, on suspicion of a design of that kind. Xerxes divided his army at Panopeus, and proceeded with the main body through Bœotia into Attica, while a party keeping Parnassus on the right, advanced along Schiste to Delphi; but was taken with a panic when near Ilium, and fled. This monarch, it is related, was as well apprised of the contents of the temple, and the sumptuous offerings of Halyattes and Crœsus, as of the effects which he had left behind in his own palace. The divine hoard was seized by the Phœnicians under Philomelus, and dissipated in a long war with the Amphictyons. The Gauls experienced a reception like that of the Persians, and manifested

Delphi.

Delphi
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Delphinium.

fested similar dismay and superstition. Sylla, wanting money to pay his army, sent to borrow from the holy treasury, and when his messenger would have frightened him, by reporting a prodigy, that the sound of a harp had been heard from within the sanctuary, replied, it was a sign that the god was happy to oblige him.

The trade of Apollo, after it had flourished for a long period, was affected by the mal-practices of some concerned in the partnership, who were convicted of bribery and corruption, and ruined the character of their principal. The temple in the time of Strabo was reduced to extreme poverty; but the offerings which remained were very numerous. Apollo was silent, except some efforts at intervals to regain his lost credit. Nero attempted to drive him, as it were by violence, from the cavern; killing men at the mouth, and polluting it with blood; but he lingered on, and would not entirely forsake it. Answers were reported as given by him afterwards, but not without suspicion of forgery. An oracle of Apollo at another place informed the consultants, that he should no more recover utterance at Delphi, but enjoined the continuance of the accustomed offerings.

The city of Delphi was free under the Romans. In the time of Pausanias, who has particularly described it, there still remained an invaluable treasure of the offerings within the court of the temple. The number, variety, and beauty of these were prodigious. The store appeared inexhaustible; and the robbery of Nero, who removed five hundred brazen images, was rather regretted than perceived. The holy treasuries, though empty, served as memorials of the piety and glory of the cities which erected them. The Athenian portico preserved the beaks of ships and the brazen shields; trophies won in the Peloponnesian war. And a multitude of curiosities remained untouched.

Constantine the Great, however, proved a more fatal enemy to Apollo and Delphi than either Sylla or Nero. He removed the sacred tripods to adorn the hippodrome of his new city; where these, with the Apollo, the statues of the Heliconian muses, and the celebrated Pan, dedicated by the Greek cities after the war with the Medes, were extant when Sozomen wrote his history. Afterwards Julian sent Oribasius to restore the temple; but he was admonished by an oracle to represent to the emperor the deplorable condition of the place. 'Tell him the well-built court is fallen to the ground. Phoebus has not a cottage, nor the prophetic laurel, nor the speaking fountain (Cassotis); and even the beautiful water is extinct.' See DELPHOS.

DELPHINIA, in *Antiquity*, feasts which the inhabitants of Egina celebrated in honour of Apollo, surnamed *Delphinus*, so called, as it is pretended, because he assumed the form of a dolphin to conduct Castilius and his colony from the isle of Crete to the *Sinus Crissaus Delphinium*, one of the courts of judicature of the Athenians; so called from the proximity of the place, where they held their assemblies, to the temple of Apollo Delphinus.

DELPHINIUM, DOLPHIN-FLOWER, OR LARKSPUR; a genus of plants, belonging to the polyandria class; and in the natural method ranking under the 26th order, *Mutisliques*. See *BOTANY Index*.

DELPHINUS, or DOLPHIN: a genus of fishes *Delphinus*, belonging to the order of *Cete*. See *CETOLOGY* *Delphos*.
Index.

DELPHINUS, in *Astronomy*, a constellation of the northern hemisphere; whose stars in Ptolemy's catalogue are 10: in Tycho's the same number; in Hevelius's 14; and in Flamstead's 18.

DELPHOS, a town, or rather village, of Turkey in Asia, in the province of Libadia; occupying part of the site of the ancient Delphi. See DELPHI.

A late traveller * informs us, that some vestiges of * *Chandler's Travels in Greece*. temples are visible; and above them, in the mountain-side, are sepulchres, niches, and horizontal cavities for

the body, some covered with slabs. Farther on is a niche cut in the rock with a seat, intended, it seems, for the accommodation of travellers wearied with the ragged track and the long ascent. The monastery is on the site of the gymnasium. Strong terrace walls and other traces of a large edifice remain. The village is at a distance. Castalia is on the right hand as you ascend to it, the water coming from on high and crossing the road; a steep precipice, above which the mountain still rises immensely, continuing on in that direction. The village consists of a few poor cottages of Albanians covering the site of the temple and oracle. Beneath it to the south is a church of St Elias, with areas, terrace walls, arches, and vestiges of the buildings once within the court. The concavity of the rock in this part gave to the site the resemblance of a theatre. Turning to the left hand, as it were toward the extremity of one of the wings, you come again to sepulchres hewn in the rock, and to a semicircular recess or niche with a seat as on the other side. Higher up than the village is the hollow of the stadium, in which were some seats and scattered fragments.

Higher up, within the village, is a piece of ancient wall, concealed from view by a shed, which it supports. The stone is brown, rough, and ordinary, probably that of Parnassus. On the south side are many inscriptions, with wide gaps between the letters, which are negligently and faintly cut; all nearly of the same tenor, and very difficult to copy. They register the purchase of slaves who had entrusted the price of their freedom to the god; containing the contract between Apollo and their owners, witnessed by his priests and by some of the archons. This remnant seems to be part of the wall before Cassotis; as above it is still a fountain, which supplies the village with excellent water, it is likely from the ancient source.

The water of Castalia in the neighbourhood, from which the Pythia, and the poets who verified her answers, were believed to derive a large share of their inspiration, descends through a cleft of Parnassus; the rock on each side high and steep, ending in two summits; of which one was called *Hyampeia*, and had beneath it the sacred portion of Autonus, a local hero as distinguished as Phylacus. From this precipice the Delphians threw down the famous *Aëlop*. By the stream, within the cleft, are seen small broken stairs leading to a cavity in which is water, and once perhaps up to the top. Grooves have been cut, and the marks of tools are visible on the rock; but the current, instead of supplying a fountain, now passes over its native bed, and hastens down a course deep-worn to join the *Plistus*. Close by, at the foot of the eastern precipice,

Delta
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Deluge.

precipice, is a basin with steps on the margin, once, it is likely, the bath used by the Pythia. Above, in the side of the mountain, is a pretty church dedicated to St John, within which are excavations resembling niches, partly concealed from view by a tree.

DELTA, is a part of Lower Egypt, which takes up a considerable space of ground between the branches of the Nile and the Mediterranean sea: the ancients called it the *isle of Delta*, because it is in the shape of a triangle, like the Greek letter of that name. It is about 130 miles along the coast from Damietta to Alexandria, and 70 on the sides from the place where the Nile begins to divide itself. It is the most plentiful country in all Egypt, and it rains more there than in other parts, but the fertility is chiefly owing to the inundation of the river Nile. The principal towns on the coast are Damietta, Rosetta, and Alexandria; but, within land, Menoufia, and Maala or Elmala.

DELTOIDES, in *Anatomy*. See ANATOMY, *Table of the Muscles*.

DELUGE, an inundation or overflowing of the earth, either wholly or in part, by water.

We have several deluges recorded in history; as that of Ogyges, which overflowed almost all Attica; and that of Deucalion, which drowned all Thessaly in Greece: but the most memorable was that called the *Universal Deluge*, or *Noah's Flood*, which overflowed and destroyed the whole earth; and from which only Noah, and those with him in the ark, escaped.

1
Era of the deluge.

This flood makes one of the most considerable epochs in chronology. Its history is given by Moses, Gen. ch. vi. and vii. Its time is fixed, by the best chronologers, to the year from the creation 1656, answering to the year before Christ 2293. From this flood, the state of the world is divided into *diluvian* and *antediluvian*. See ANTEDILUVIANS.

2
Objections to the fact.

Among the many testimonies of the truth of this part of the Mosaic history, we may account the general voice of mankind at all times, and in all parts of the world. The objections of the free-thinkers have indeed principally turned upon three points, viz. 1. The want of any direct history of that event by the profane writers of antiquity; 2. The apparent impossibility of accounting for the quantity of water necessary to overflow the whole earth to such a depth as it is said to have been: and, 3. There appearing no necessity for an universal deluge, as the same end might have been accomplished by a partial one.

I. The former of these objections has given rise to several very elaborate treatises, though all that has yet been done in this way has scarcely been able to silence the objectors. Mr Bryant, in his system of Mythology, has with great learning and considerable success endeavoured to show, that the deluge was one of the principal, if not the only foundation of the Gentile worship; that the first of their deities was Noah; that all nations of the world look up to him as their founder; and that he, his sons, and the first patriarchs, are alluded to in most if not all of the religious ceremonies, not only of the ancient but of the modern heathens. In short, according to this author, the deluge, so far from being forgot, or obscurely mentioned by the heathen world, is in reality conspicuous throughout every one of their acts of religious worship.

The Egyptian Osiris, according to him, was the same

with Ham the son of Noah, though the name was sometimes bestowed on Noah himself. That this is the case, is evident, he thinks, from its being said that he was exposed in an ark, and afterwards restored to day; that he planted the vine, taught mankind agriculture, and inculcated upon them the maxims of religion and justice. Something of the same kind is related of Perseus. He is represented by some ancient historians as a great astronomer, and well versed in other sciences. After being conceived in a shower of gold, he was exposed in an ark upon the waters, and is said to have had a renewal of life.—The history of Myrina the Amazon affords a kind of abridgement and mixture of the histories of Osiris and Perseus. Similar to these is the history of Hercules himself. But our author observes, that under the titles of *Osiris*, *Perseus*, *Myrina*, &c. the ancients spoke of the exploits of a whole nation, who were no other than the Cuthites or Cushites, the descendants of Cush the son of Ham and father of Nimrod. These people spread themselves into the most remote corners of the globe; and hence the heroes whom they represented are always set forth as conquering the whole world.—According to Diodorus Siculus, the Egyptian Osiris was the same with the Dionusus of the Greeks. He is said to have been twice born, and to have had two fathers and two mothers; to have been wonderfully preserved in an ark; to have travelled all over the earth; taught the use of the vine, to build, plant, &c. The Indians claim him as a native of their country, though some allow that he came from the west. Of Cronus and Astarte, it is said that they went over the whole earth, disposing of the countries as they pleased, and doing good wherever they came. The same is related of Ouranus, Themis, Apollo, &c. though all their exploits are said to have been the effects of conquest, and their benevolence enforced by the sword. In a similar manner he explains the histories of other heroes of antiquity; and having thus, in the characters and history of the most celebrated personages, found traces of the history of Noah and his family, our author proceeds to inquire into the memorials of the deluge itself, to be met with in the history or religious rites of the different nations of antiquity. “We may reasonably suppose (says he), that the particulars of this extraordinary event would be gratefully commemorated by the patriarch himself, and transmitted to every branch of his family; that they were made the subject of domestic converse, where the history was often renewed, and ever attended with a reverential awe and horror, especially in those who had been witnesses to the calamity, and had experienced the hand of Providence in their favour. In process of time, when there was a falling off from the truth, we might farther expect, that a person of so high a character as Noah, so particularly distinguished by the Deity, could not fail of being revered by his posterity; and when idolatry prevailed, that he would be one of the first among the sons of men to whom divine honours would be paid. Lastly, we might conclude, that these memorials would be interwoven in the mythology of the Gentile world; and that there would be continual allusions to these ancient occurrences in the rites and mysteries as they were practised by the nations of the earth. In conformity to these

Deluge.
3
Bryant's account of the ancient heroes.

4
Testimonies of the deluge to be met with in heathen authors.

Deluge.

these suppositions, I shall endeavour to show that these things did happen; that the history of the deluge was religiously preserved in the first ages; that every circumstance of it is to be met with among the historians and mythologists of different countries: and traces of it are to be found particularly in the sacred rites of Egypt and of Greece.

5
Various titles by which Noah was distinguished.

"It will appear from many circumstances in the more ancient writers, that the great patriarch was highly revered by his posterity. They looked up to him as a person highly favoured by heaven; and honoured him with many titles, each of which had a reference to some particular part of his history. They styled him *Prometheus*, *Deucalion*, *Atlas*, *Theub*, *Zuth*, *Xuthus*, *Inachus*, *Ofris*. When there began to be a tendency towards idolatry, and the adoration of the sun was introduced by the posterity of Ham, the title of *Helius*, among others, was conferred upon him. They called him also *Mny* and *Mav*, which is the moon. When colonies went abroad, many took to themselves the title of *Minyæ* and *Minyæ* from him; just as others were denominated *Achæmenidæ*, *Aurita*, *Heliadæ*, from the sun. People of the former name are to be found in Arabia and in other parts of the world. The natives at Orchomenos were styled *Minyæ*, as were some of the inhabitants of Thessaly. Noah was the original Zeus and Dios. He was the planter of the vine, and inventor of fermented liquors: whence he was denominated *Zeuth*, which signifies ferment, rendered *Zeus* by the Greeks. He was also called *Dionusos*, interpreted by the Latins *Bacchus*, but very improperly. *Bacchus* was Chus the grandson of Noah; as Ammon may in general be esteemed Ham, so much revered by the Egyptians.

"Among the people of the east, the true name of the patriarch was preserved; they called him *Noas*, *Naus*, and sometimes contracted *Nous*; and many places of sanctity, as well as rivers, were denominated from him. Anaxagoras of Clazomene had obtained some knowledge of him in Egypt: By him the patriarch was denominated *Noas* or *Nous*; and both he and his disciples were sensible that this was a foreign appellation; notwithstanding which, he has acted as if it had been a term of the Greek language. Eusebius informs us, that the disciples of Anaxagoras say, 'that *Nous* is, by interpretation, the deity *Dis* or *Dios*; and they likewise esteem *Nous* the same as *Prometheus*, because he was the renewer of mankind, and was said to have fashioned them again,' after they had been in a manner extinct. After this, however, he gives a solution of the story, upon the supposition that *Nous* is the same with the Greek word *νους*; the mind: that 'the mind was *Prometheia*; and *Prometheus* was said to renew mankind, from new forming their minds, and leading them, by cultivation, from ignorance.'

"Suidas has preserved, from some ancient author, a curious memorial of this wonderful personage, whom he affects to distinguish from *Deucalion*, and styles *Nannacus*. According to him, this *Nannacus* was a person of great antiquity, and prior to the time of *Deucalion*. He is said to have been a king, who foreseeing the approaching deluge, collected every body together, and led them to a temple, where he offered up his prayers for them, accompanied with

many tears. There is likewise a proverbial expression about *Nannacus* applied to people of great antiquity.

"Stephanus gives great light to this history, and supplies many deficiencies. 'The tradition is (says he), that there was one formerly named *Annacus*, the extent of whose life was above 300 years. The people who were of his neighbourhood and acquaintance had inquired of an oracle how long he was to live; and there was an answer given, that when *Annacus* died, all mankind would be destroyed. The Phrygians, upon this account, made great lamentations, from whence arose the proverb *το επι Ανανακ κλαουσι*, the lamentation of *Annacus*, made use of for people or circumstances highly calamitous. When the flood of *Deucalion* came, all mankind were destroyed, according as the oracle had foretold. Afterwards, when the surface of the earth began to be again dry, *Zeus* ordered *Prometheus* and *Minerva* to make images of clay in the form of men; and, when they were finished, he called the winds, and made them breathe into each, and render them vital."

From these histories Mr Bryant concludes as follows: "However the story may have been varied, the principal outlines plainly point out the person who is alluded to in these histories. It is, I think, manifest, that *Annacus*, and *Nannacus*, and even *Inachus*, relate to *Noachus* or *Noah*. And not only these, but the histories of *Deucalion* and *Prometheus* have a like reference to the patriarch; in the 600th year, and not the 300th, of whose life the waters prevailed upon the earth. He was the father of mankind, who were renewed in him. Hence he is represented by another author, under the character of *Prometheus*, as a great artist, by whom men were formed anew, and were instructed in all that was good.

"Noah was the original *Cronus* and *Zeus*; though the latter is a title conferred sometimes upon his son *Ham*. There is a very particular expression recorded by *Clemens of Alexandria*, and attributed to *Pythagoras*, who is said to have called the sea the *tear of Cronus*; and there was a farther tradition concerning this person, that he drank, or swallowed up all his children. The tears of *Isis* are represented as very mysterious. They are said to have flowed whenever the Nile began to rise, and to flood the country.—The overflowing of that river was the great source of affluence to the people, and they looked upon it as their chief blessing; yet it was ever attended with mystical tears and lamentations. This was particularly observed at *Coptos*, where the principal deity was *Isis*. An ancient writer imagines that the tears and lamentations of the people were to implore an inundation; and the tears of *Isis* were supposed to make the river swell. But all this was certainly said and done in memorial of a former flood, of which they made the overflowing of the Nile a type.

"As the patriarch was by some represented as a king called *Naachus* or *Naachus*; so by others he was styled *Inachus*, and supposed to have reigned at *Argos*. Hence *Inachus* was made a king of Greece; and *Phoroneus* and *Apis* brought in succession after him. But *Inachus* was not a name of Grecian original; it is mentioned by *Eusebius*, in his account of the first ages,

Deluge.

6

Inachus, Deucalion, and Prometheus, the same with Noah.

Deluge. ages, that there reigned in Egypt Telegonus a prince of foreign extraction, who was the son of Ones the shepherd, and the seventh in descent from Inachus. And in the same author we read, that a colony went forth from that country into Syria, where they founded the ancient city of Antioch; and that they were conducted by Casus and Belus, who were sons of Inachus. By Inachus is certainly meant Noah; and the history relates to some of the more early descendants of the patriarch. His name has been rendered very unlike itself, by having been lengthened with terminations, and likewise fashioned according to the idiom of different languages. But the circumstances of the history are so precise and particular, that we cannot miss of the truth.

“ He seems in the east to have been called *Noas*, *Noasis*, *Nusus*, and *Nus*; and by the Greeks his name was compounded *Dionusus*. The Ammonians, wherever they came, founded cities to his honour; hence places called *Nusa*, will often occur; and indeed a great many of them are mentioned by ancient authors. These, though widely distant, being situated in countries far removed, yet retained the same original histories; and were generally famous for the plantation of the vine. Misled by this similarity of traditions, people in after times imagined that Dionusus must necessarily have been where his history occurred; and as it was the turn of the Greeks to place every thing to the account of conquest, they made him a great conqueror, who went over the face of the whole earth, and taught mankind the plantation of the vine. We are informed, that Dionusus went with an army over the face of the whole earth, and taught mankind, as he passed along, the method of planting the vine, and how to press out the juice, and receive it in proper vessels. Though the patriarch is represented under various titles, and even these not always uniformly appropriated; yet there will continually occur such peculiar circumstances of his history as will plainly point out the person referred to. The person preserved is always mentioned as preserved in an ark. He is described as being in a state of darkness, which is represented allegorically as a state of death. He then obtained a new life, which is called a second birth; and is said to have his youth renewed. He is, on this account, looked upon as the first-born of mankind; and both his antediluvian and postdiluvian states are commemorated, and sometimes the intermediate state is also spoken of. Diodorus calls him *Deucalion*; but describes the deluge as in a manner universal. “ In the deluge which happened in the time of Deucalion, almost all flesh died.” Apollodorus having mentioned Deucalion *εν λαρνακι*, *confined to the ark*, takes notice upon his quitting it, of his offering up an immediate sacrifice to the God who delivered him. As he was the father of all mankind, the ancients have made him a person of very extensive rule; and supposed him to have been a king. Sometimes he is described as a monarch of the whole earth; at other times he is reduced to a petty king of Thessaly. He is mentioned by Helladius in his latter capacity; who speaks of the deluge in this time, and of his building altars to the gods. Apollonius Rhodius supposes him to have been a native of Greece, according to the common notions; but notwithstanding his prejudices, he gives so parti-

Vol. VII. Part I.

cular a character of him, that the true history cannot be mistaken. He makes him indeed the son of Prometheus, the son of Japetus; but in these ancient mythological accounts all genealogy must be entirely disregarded. Though this character be not precisely true, yet we may learn that the person represented was the first of men, through whom religious rites were renewed, cities built, and civil polity established in the world; none of which circumstances are applicable to any king of Greece. We are assured by Philo, that Deucalion was Noah; and the Chaldeans likewise mentioned him by the name of Xifuthrus, as we are informed by Cedrenus.

“ That Deucalion was unduly adjudged by the people of Thessaly to their country solely, may be proved from his name occurring in different parts of the world, and always accompanied with some history of the deluge. The natives of Syria laid the same claim to him. He was supposed to have founded the temple at Hierapolis, where was a chasm through which the waters after the deluge were said to have retreated. He was likewise reported to have built the temple of Jupiter at Athens; where there was a cavity of the same nature, and a like tradition, that the waters of the flood passed off through this aperture. However groundless the notions may be of the waters having retreated through these passages, yet they show what impressions of this event were retained by the Ammonians, who introduced some history of it wherever they came. As different nations succeeded one another in these parts, and time produced a mixture of generations, they varied the history, and modelled it according to their notions and traditions; yet the ground-work was always true, and the event for a long time universally commemorated. Josephus, who seems to have been a person of extensive knowledge, and versed in the histories of nations, says, that this great occurrence was to be met with in the writings of all persons who treated of the first ages. He mentions Berosus of Chaldea, Hieronymus of Egypt, who wrote concerning the antiquities of Phœnicia; also Alnaseas, Abydenus, Melon, and Nicolaus Damascenus, as writers, by whom it was recorded, and adds, that it was taken notice of by many others.

“ Among the eastern nations, the traces of this event are more vivid and determinate than those of Greece, and more conformable to the accounts of Moses. Eusebius has preserved a most valuable extract to this purpose from Abydenus; which was taken from the archives of the Medes and Babylonians. This writer speaks of Noah, whom he names Seisithrus, as a king; and says, that the flood began upon the 15th day of the month Desius; that during the prevalence of the waters, Seisithrus sent out birds, that he might judge if the flood had remained; but that the birds, not finding any resting place, returned to him again. This was repeated three times; when the birds were found to return with their feet stained with soil; by which he knew the flood was abated. Upon this he quitted the ark, and was never more seen of men, being taken away by the gods from the earth. Abydenus concludes with a particular, in which the eastern writers are unanimous; that the place of descent from the ark was in Armenia, and speaks of its remains being preserved for a long time. Plutarch mentions the

S

Noachic

Deluge.

⁷ Deucalioa proved not to have belonged to Thessaly.

⁸ Accounts of the flood among the eastern nations.

Deluge.

Noachic dove, and its being sent out of the ark. But the most particular history of the deluge, and the nearest of any to the account given by Moses, is to be found in Lucian. He was a native of Samosata, a city of Comagene, upon the Euphrates, a part of the world where memorials of the deluge were particularly preserved, and where a reference to that history was continually kept up in the rites and worship of the country. His knowledge therefore was obtained from the Asiatic nations among whom he was born, and not from his kinsmen the Helladians, who were far inferior in the knowledge of ancient times. He describes Noah under the name of *Deucalion*; and says, 'that the present race of mankind are different from those who first existed; for those of the antediluvian world were all destroyed. The present world is peopled from the sons of Deucalion; having increased to so great a number from one person. In respect to the former brood, they were men of violence, and lawless in their dealings. They regarded not oaths, nor observed the rights of hospitality, nor showed mercy to those who sued for it. On this account they were doomed to destruction; and for this purpose there was a mighty eruption of waters from the earth, attended with heavy showers from above; so that the rivers swelled, and the sea overflowed, till the whole earth was covered with a flood, and all flesh drowned. Deucalion alone was preserved to repeople the world. This mercy was shown to him on account of his piety and justice. His preservation was effected in this manner: He put all his family, both his sons and their wives, into a vast ark which he had provided, and he went into it himself. At the same time animals of every species, boars, horses, lions, serpents, whatever lived upon the face of the earth followed him by pairs; all which he received into the ark, and experienced no evil from them; for there prevailed a wonderful harmony throughout, by the immediate influence of the Deity. Thus were they waded with him as long as the flood endured.'" After this he proceeds to mention, that upon the disappearing of the waters, Deucalion went forth from the ark, and raised an altar to God; but he transposes the scene to Hierapolis in Syria, where the natives pretended, as has been already mentioned, to have very particular memorials of the deluge.

9
Remains of the ark said to have been long visible.

"Most of the authors who have transmitted us these accounts, at the same time inform us, that the remains of the ark were to be seen in their days on one of the mountains of Armenia. Abydenus particularly says, in confirmation of this opinion, that the people of the country used to get small pieces of the wood, which they carried about by way of amulet. And Berosus mentions, that they scraped off the asphaltus with which it was covered, and used it as a charm. Some of the fathers seem to insist on the certainty of the ark being still remaining in their time. Theophilus says expressly, that the remains were to be seen upon the mountains of Aram, or Armenia. And Chrysostom appeals to it as to a thing well known. 'Do not (says he) those mountains of Armenia bear witness to the truth? those mountains where the ark first rested? And are not the remains of it preserved there even unto this day?'"

"There was a custom among the priests of Ammon,

of carrying a boat in procession at particular seasons, in which was an oracular shrine held in great veneration. They were said to have been 80 in number, and to have carried the sacred vessel about just as they were directed by the impulse of the Deity. This custom was likewise in use among the Egyptians; and Bishop Pocock has preserved three specimens of ancient sculpture, wherein this ceremony is displayed. They are of wonderful antiquity, and were found by him in Upper Egypt.

"Part of the ceremony in most of the ancient mysteries consisted in carrying about a ship or boat; which custom, upon due examination, will be found to relate to nothing else but Noah and the deluge. The ship of Isis is well known, and the festivity among the Egyptians whenever it was carried in public. The name of this, and of all the navicular shrines, was *Baris*; which is remarkable, for it was the very name of the mountain, according to Nicolaus Damascenus, on which the ark of Noah rested, the same as Ararat in Armenia. He mentions, that there is a large mountain in Armenia, which stands above the country of the Minyæ, called *Baris*; to this it was said that many people betook themselves in the time of the deluge, and were saved; and there is a tradition of one person in particular floating in an ark, and arriving at the summit of the mountain. We may be assured then, that the ship of Isis was a sacred emblem; in honour of which there was among the Egyptians an annual festival. It was in after times admitted among the Romans, and set down in their kalendar for the month of March. The former, in their description of the primary deities, have continually some reference to a ship or float. Hence we frequently read of *Θεοὶ ναυιλλοῦτες* (sailing gods). They oftentimes, says Porphyry, describe the sun in the character of a man sailing upon a float. And Plutarch observes to the same purpose, that they did not represent the sun and the moon in chariots, but waded about upon floating machines. In doing which they did not refer to the luminaries, but to a person represented under those titles. The sun, or Orus, is likewise described by Jamblichus as sitting upon the lotus, and sailing in a vessel.

"It is said of Sesostris, that he constructed a ship which was 280 cubits in length. It was of cedar, plated without with gold, and inlaid with silver; and it was, when finished, dedicated to Osiris at Thebes. It is not credible that there should have been a ship of this size, especially in an inland district, the most remote of any in Egypt. It was certainly a temple and a shrine. The former was framed upon this large scale; and it was the latter on which the gold and silver were so lavishly expended. There is a remarkable circumstance relating to the Argonautic expedition; that the dragon slain by Jason was of the size of a trireme; by which must be meant, that it was of the shape of a ship in general, for there were no triremes at the time alluded to. And I have moreover shown, that all these dragons, as they have been represented by the poets, were in reality temples, *Dracontia*; where, among other rites, the worship of the serpent was instituted. There is therefore reason to think, that this temple, as well as that of Sesostris, was fashioned, in respect to its superficial contents, after the model of a ship; and as to the latter, it was probably intended,

Deluge.
10
Boats or ships carried in procession by the Ammonians and Egyptians.

11
Wonderful ship of Sesostris explained.

in

Deluge.

in its outlines, to be the exact representation of the ark, in commemoration of which it was certainly built. It was a temple sacred to Osiris at Theba: or, to say the truth, it was itself called *Theba*; and both the city, said to be one of the most ancient in Egypt, as well as the province, were undoubtedly denominated from it. Now *Theba* was the name of the ark. It is the very word made use of by the sacred writer; so that we may, I think, be assured of the prototype after which this temple was fashioned. It is said indeed to have been only 280 cubits in length; whereas the ark of Noah was 300. But this is a variation of only one-fifteenth in the whole: and as the ancient cubit was not in all countries the same, we may suppose that this disparity arose rather from the manner of measuring, than from any real difference in the extent of the building. It was an idolatrous temple, said to have been built by Sesostris in honour of Osiris. I have been repeatedly obliged to take notice of the ignorance of the Greeks in respect to ancient titles, and have shown their misapplication of terms in many instances; especially in their supposing temples to have been erected by persons to whom they were in reality sacred. Sesostris was Osiris; the same as Dionusus, Menes, and Noah. He is called *Seisithrus* by Abydenus; *Xisouthros* by Berosus and Apollodorus; and is represented by them as a prince in whose time the deluge happened. He was called *Zuth*, *Xuth*, and *Zeus*; and had certainly divine honours paid to him.

12
Other emblematical representations explained.

“Pausanias gives a remarkable account of a temple of Hercules at Eruthra in Ionia; which he mentions as of the highest antiquity, and very like those of Egypt. The deity was represented upon a float, and was supposed to have come thither in this manner from Phoenicia. Aristides mentions, that at Smyrna, upon the feast called *Dionysia*, a ship used to be carried in procession. The same custom prevailed among the Athenians at the Panathenæa; when what was termed the sacred ship was borne with great reverence through the city to the temple of Demeter at Eleusis. At Phalerus, near Athens, there were honours paid to an unknown hero, who was represented in the stern of a ship. At Olympia, the most sacred place in Greece, was a representation of the like nature. It was a building like the fore-part of a ship, which stood facing the end of the hippodromus; and towards the middle of it was an altar, upon which, at the renewal of each olympiad, certain rites were performed.

“I think it is pretty plain that all these emblematical representations, of which I have given so many instances, related to the history of the deluge, and the conservation of one family in the ark. This history was pretty recent when these works were executed in Egypt, and when the rites were first established: and there is reason to think, that in early times most shrines of the Mizraim were formed under the resemblance of a ship, in memory of this great event. Nay, farther, both ships and temples received their names from thence, being styled by the Greeks, who borrowed largely from Egypt, *Naus*, and *Naos*, and mariners *Nautai*, *Nauta*, in reference to the patriarch, who was variously styled *Noas*, *Nous*, and *Noah*.

“However the Greeks may in their mysteries have sometimes introduced a ship as a symbol, yet in their references to the deluge itself, and to the persons pre-

served, they always speak of an ark. And though they were apt to mention the same person under various titles, and by these means different people seem to be made principals in the same history; yet they were so far uniform in their account of this particular event, that they made each of them to be exposed in an ark. Thus it is said of Deucalion, Perseus, and Dionusus, that they were exposed upon the waters in a machine of this fabric. Adonis was hid in an ark by Venus, and was supposed to have been in a state of death for a year. Theocritus introduces a pastoral personage named *Comates*, who was exposed in an ark for the same term, and wonderfully preserved. Of Osiris being exposed in an ark we have a very remarkable account in Plutarch; who mentions, that it was on account of *Typhon*, and that it happened on the 17th of the month Athyr, when the sun was in Scorpio. This, in my judgment, was the precise time when Noah entered the ark, and when the flood came, which, in the Egyptian mythology, was called *Typhon*.

Deluge.

“Typhon is one of those whose character has been greatly confounded. This has arisen from two different personages being included under one name, who undoubtedly were distinguished in the language of Egypt. Typhon was a compound of *Tuph* or *Tupha-On*; and signified a high altar of the Deity. There were several such in Egypt, upon which they offered human sacrifices; and the cities which had these altars were styled *Typhonian*. But there was another Typhon, who was very different from the former, however by mistake blended with that character. By this was signified a mighty whirlwind and inundation; and it oftentimes denoted the ocean; and particularly the ocean in a ferment. For, as Plutarch observes, by Typhon was understood any thing violent and unruly. It was a derivative from *Tuph*, like the former name; which *Tuph* seems here to have been the same as the *Suph* of the Hebrews. By this they denoted a whirlwind; but among the Egyptians it was taken in a greater latitude, and signified any thing boisterous, particularly the sea. Plutarch speaks of it as denoting the sea; and says likewise, that the salt of the sea was called the foam of Typhon. It signified also a whirlwind, as we learn from Euripides, who expresses it *Tuphos*; and the like is to be found in Hesychius, who calls it a violent wind.

13
Explanation of the word Typhon.

“The history of Typhon was taken from hieroglyphical descriptions. In these the dove, *oinas*, was represented as hovering over the *mundane* egg, which was exposed to the fury of Typhon: For an egg, containing in it the elements of life, was thought no improper emblem of the ark, in which were preserved the rudiments of the future world. Hence, in the Dionusiaca, and in other mysteries, one part of the nocturnal ceremony consisted in the consecration of an egg. By this, we are informed by Porphyry, was signified the world. This world was Noah and his family; even all mankind, inclosed and preserved in the ark.

“In respect to Typhon, it must be confessed that the history given of him is attended with some obscurity. The Grecians have comprehended several characters under one term, which the Egyptians undoubtedly distinguished. The term was used for a title as

Deluge.

well as a name; and several of those personages which had a relation to the deluge, were styled Typhonian or Diluvian. All these the Grecians have included under one and the same name, Typhon. The real deity by whom the deluge was brought upon the earth had the appellation of Typhonian, by which was meant *Diluvii Deus* (A). It is well known that the ark was constructed by a divine commission: in which, when it was completed, God inclosed the patriarch and his family. Hence it is said, that Typhon made an ark of curious workmanship, that he might dispose of the body of Osiris. Into this Osiris entered, and was shut up by Typhon. All this relates to the Typhonian deity who inclosed Noah, together with his family, within the limits of an ark. The patriarch also, who was thus interested in the event, had the title of Typhonian. I have shown that the ark by the mythologists was spoken of as the mother of mankind. The stay in the ark was looked upon as a state of death and of regeneration. The passage to life was through the door of the ark, which was formed in its side. Through this the patriarch made his descent; and at this point was the commencement of time. This history is obscurely alluded to in the account of Typhon; of whom it is said, that without any regard to time or place, he forced a passage and burst into light obliquely through the side of his mother. This return to light was described as a revival from the grave; and Plutarch accordingly mentions the return of Osiris from *Hades*, after he had been for a long season inclosed in an ark and in a state of death. This renewal of life was by the Egyptians esteemed a second state of childhood. They accordingly, in their hieroglyphics, described him as a boy, whom they placed upon the lotus or water-lily, and called him Orus. He was the supposed son of Isis; but it has been shown that Isis, Rhea, Atargatis, were all emblems of the ark, that *receptacle* which was styled the mother of mankind. Orus is represented as undergoing from the Titans all that Osiris suffered from Typhon; and the history at bottom is the same. Hence it is said of Isis, that she had the power of making people immortal; and that when she found her son Orus, in the midst of the waters, dead through the malice of the Titans, she not only gave him a renewal of life, but also conferred upon him immortality."

In this manner does our author decipher almost all the ancient fables of which no satisfactory solution was ever given before. He shows that the primitive gods of Egypt, who were in number eight, were no other than the eight persons saved in the ark; that almost all the heathen deities had one way or other a reference to Noah. He shows that he was characterised under the titles of Janus, Nereus, Proteus, Oannes, Dagon, &c. &c. and in short, that the deluge, so far from being unknown to the heathens, or forgot by them, was in a manner the basis of the whole of their worship. He traces the history of the raven and dove sent forth by

Noah in the customs of various nations, not only in the east but the west also. Of the numberless testimonies of the truth of this part of sacred history to be met with among the western nations, however, we shall select one more, which is an ancient coin usually known by the name of the *Apamean medal*. "The learned Falconerius (says Mr Bryant) has a curious dissertation upon a coin of Philip the Elder, which was struck at Apamea (B), and contained on its reverse an epitome of this history. The reverse of most Asiatic coins relates to the religion and mythology of the places where they were struck. On the reverse of this coin is delineated a kind of square machine floating upon the water. Through an opening in it are seen two persons, a man and a woman, as low as the breast: and upon the head of the woman is a veil. Over this ark is a triangular kind of pediment, on which there sits a dove; and below it another, which seems to flutter its wings, and hold in its mouth a small branch of a tree. Before the machine is a man following a woman, who by their attitude seem to have just quitted it, and to have got upon dry land. Upon the ark itself, underneath the persons there inclosed, is to be read in distinct characters, ΝΩΕ. The learned editor of this account says, that it had fallen to his lot to meet with three of these coins. They were of brass, and of the medallion size. One of them he mentions to have seen in the collection of the duke of Tuscany; the second in that of the cardinal Ottoboni; and the third was the property of Augustino Chigi, nephew to Pope Alexander VII."

Not content with these testimonies, however, which are to be met with in the western regions, or at least in those not very far to the eastward, our author shows that "the same mythology (of the Egyptians), and the same hieroglyphics, were carried as far as China and Japan; where they are to be found at this day. The Indians have a person whom they call Buto or Budo. This is the same as Boutus of Egypt, Battus of Cyrene, and Bœotus of Greece: the account given of him is similar to that of Typhon; for it is said that he did not come to life in the usual way, but made himself a passage through the side of his mother; which mother is represented as a virgin. This history, though now current among the Indians, is of great antiquity, as we may learn from the account given of this personage by Clemens Alexandrinus. "There is a cast of Indians (says he) who are disciples of Boutas. This person, on account of his extraordinary sanctity, they look up to as a god." The name of Boutas, Battus, and Bœotus, though apparently conferred upon the patriarchs, yet originally related to the machine in which he was preserved. Of this some traces may be found among the Greeks. One of the Ammonian names for the ark was Aren or Arene; and Bœotus is said by Diodorus Siculus to have been the son of Neptune and Arne, which is a contraction of *arene* the ark. The chief city, Boutus in Egypt, where

(A) "Plutarch owns that the Egyptians in some instances esteemed Typhon to be no other than Helius the chief deity; and they were in the right, though he will not allow it."

(B) Our author had before shown that the ancient name of Apamea was *Cibotus*, one of the names of the ark.

Deluge.

where was the floating temple, signified properly the city of the float or ark. The Bœotians, who in the Dionusiaca so particularly commemorated the ark, were supposed to be descended from an imaginary personage *Bœotus*; and from him likewise their country was thought to have received its name. But Bœotus was merely a variation from Boutus, and Butus, the ark; which in ancient times was indifferently styled Theba, Argus, Aren, Butus, and Bœotus. The term Cibotus is a compound of the same purport, and signifies both the temple of the ark and also a place for shipping.

"All the mysteries of the Gentile world seem to have been memorials of the deluge, and of the event which immediately succeeded. They consisted for the most part of a melancholy process; and were celebrated by night in commemoration of the state of darkness in which the patriarch and his family had been involved. The first thing at those awful meetings was to offer an oath of secrecy to all who were to be initiated: after which they proceeded to the ceremonies: these began with a description of chaos; by which was signified some memorial of the deluge. Chaos was certainly the same as *Bubos*, the great abyss. Who, says Epiphanius, is so ignorant as not to know, that Chaos and Buthos, the abyss, are of the same purport?

16
Explanation
of the word
Chaos.

"The names of the deities in Japan and China, and the form of them, as well as the mythology with which they are attended, point out the country from whence they originally came. In China the deity upon the lotus in the midst of waters, has been long a favourite emblem, and was imported from the west: the insigne of the dragon was from the same quarter. The Cuthites worshipped Cham, the sun; whose name they variously compounded. In China most things which have any reference to splendour and magnificence, seem to be denominated from the same object. Cham is said, in the language of that country, to signify any thing *supreme*. Cum is a fine building or palace, similar to Coma of the Ammonians. Cum is a lord or master; Cham a sceptre. Lastly, by Cham is signified a priest, analogous to the Chamanim and Chamenim of Cutha and Babylonia. The country itself is by the Tartars called *Ham*. The cities Cham-ju, Champion, Compition, Cumdan, Chamul, and many others of the same form, are manifestly compounded of the sacred term Cham. Cambalu, the name of the ancient metropolis, is the city of Cham-bal; and Milton styles it very properly *Cambalu, seat of Cathaian Chan*. By this is meant the chief city of the Cuthean monarch; for Chan is a derivative of Cahen, a prince. It seems sometimes in China and Japan to have been expressed *Quan* and *Quano*.

"Two temples are taken notice of by Hamilton, near Syrian in Pegu, which he represents as so like in structure, that they seemed to be built on the same model. One of these was called *Kiakiack*, or the *God of Gods temple*. The other is called *the temple of Dagon*; and the door and windows of it are perpetually shut, so that none can enter but the priests. They will not tell of what shape the idol is, but only say that it is not of human form. The former deity, *Kiakiack*, is represented as asleep, of a human shape, and 60 feet long; and when he awakes, the world is to be destroyed. As soon as *Kiakiack* has dissolved the frame and being of

Deluge.

this world, Dagon will gather up the fragments, and make a new one. I make no doubt but the true name of the temple was *Iach-Iach*, and dedicated to the same god as the *Jachusi* in Japan. Mr Wise takes notice of the Grecian exclamation to Dionusus, when the terms *Iacche, O Iacche*, were repeated: and he supposes, with great probability, that the Peguan name had a reference to the same deity. It is certain, that the worship of Dionusus prevailed very early among the nations in the east. The Indians used to maintain, that his rites first began among them. Professor Bayer has shown, that traces of his worship are still to be observed among the Tamuli of Tranquebar. "They have a tradition (says he), that there was once a gigantic person named *Maidasburen*, who was born of Nisadabura near the mountain Meru. He had the horns of a bull, and drank wine, and made war upon the gods. He was attended by eight *Pudam*, who were gigantic and mischievous dæmons, of the family of those Indian shepherds called *Kobaler*." In this account we have a manifest reference to the history of Dionusus, as well as that of the Dionusians, by whom his rites were introduced. And we may perceive that it bears a great resemblance to the accounts transmitted by the Grecians. What are these *Kobaler*, who were descended from the shepherds, but the same as the *Cobali* of Greece, the uniform attendants upon Dionusus? a set of priests whose cruelty and chicanery rendered them infamous. 'The *Cobali* (says an ancient author) were a set of cruel dæmons, who followed in the retinue of Dionusus. It is a term made use of for knaves and cheats.'

"As the deity, in the second temple of Syrian, to which strangers were not admitted, was not of a human form, and was called *Dagon*, we may easily conceive the hidden character under which he was described. We may conclude, that it was no other than that mixed figure of a man and a fish, under which he was of old worshipped both in Palestine and Syria. He is expressed under this symbolical representation in many parts of India; and by the Bramins is called *Wishnou* or *Wishnou*. Dagon and Vishnou have a like reference. They equally represent the man of the sea called by Berofus *Oannes*; whose history has been reversed by the Indians. They suppose that he will restore the world, when it shall be destroyed by the chief God. But by Dagon is signified the very person through whom the earth has been already restored when it was in a state of ruin, and by whom mankind was renewed. Dagon and Noah, I have shown to be the same. Vishnou is represented, like Dagon, under the mixed figure of a man and a fish, or rather of a man, a princely figure, proceeding from a fish. The name of this district, near which the temples above stand, we find to be called *Syrian*; just as was named the region where stood the temples of Atargatis and Dagon, Syrus, Syria, and Syrian, are all of the same purport, and signify Cœlestis and Solaris, from *Sebor*, the sun."

Our author next proceeds to describe some of the Indian temples or pagodas; particularly those of Salsette, Elephanta, and another called *Elora*, near Aurunghabad in the province of Balagate, which was visited by Thevenot. The traveller relates, that "upon making diligent inquiry among the natives

about

Deluge. about the origin of these wonderful buildings, the constant tradition was, that all these pagodas, great and small, with all their works and ornaments, were made by giants; but in what age they could not tell."

"Many of these ancient structures (continues Mr Bryant) have been attributed to *Ramsander*, or Alexander the Great; but there is nothing among these stately edifices that in the least favours of Grecian workmanship; nor had that monarch, nor any of the princes after him, opportunity to perform works of this nature. We have not the least reason to think that they ever possessed the country; for they were called off from their attention this way by feuds and engagements nearer home. There is no tradition of this country having been ever conquered except by the fabulous armies of Hercules and Dionusus. What has led people to think that these works were the operation of Alexander, is the similitude of the name *Ramtxander*. To this person they have sometimes been attributed; but Ramtxander was a deity, the supposed son of Bal; and he is introduced among the personages who were concerned in the incarnations of Vishnou.

"The temple of Elora, and all the pagodas of which I have made mention, must be of great antiquity, as the natives cannot reach their era. They were undoubtedly the work of the Indo-Cuthites, who came so early into these parts. And that these structures were formed by them, will appear from many circumstances; but especially from works of the same magnificence which were performed by them in other places. For scarce any people could have effected such great works, but a branch of that family which erected the tower in Babylonia, the walls of Balbec, and the pyramids of Egypt."

Having then described a number of East Indian idols of surprising magnitude, "the Babylonians and Egyptians (says he), and all of the same great family, used to take a pleasure in forming gigantic figures, and exhibiting other representations equally stupendous. Such were the colossal statues at Thebes, and the sphinx in the plains of Coume. The statue erected by Nebuchadnezzar in the plains of Dura, was in height threecore Babylonish cubits. It was probably raised in honour of *Cham*, the sun; and perhaps it was also dedicated to the head of the Chaldaic family; who was deified, and revered under that title. Marcellinus takes notice of a statue of Apollo named *Comeus*; which, in the time of the emperor Verus, was brought from Seleucia to Rome. This related to the same deity as the preceding. We may also infer, that the temple at Kamju was erected to Cham the sun, whom the people worshipped under the name of *Samo-nifu*."

It is remarkable, that in Japan the priests and nobility have the title of *Cami*. The emperor Quebacondono, in a letter to the Portuguese viceroy, 1585, tells him that Japan is the kingdom of Chamis; whom, says he, we hold to be the same as *Scin*, the origin of all things. By *Scin* is probably meant *San*, the sun; who was the same as Cham, rendered here *Chamis*. The laws of the country are spoken of as the laws of Chamis; and we are told by Kæmpfer, that all the gods were styled either *Sin* or *Cami*. The founder of the empire is said to have been *Tensio Dai Sin*, or

Deluge. "Tensio the god of light." Near his temple was a cavern religiously visited, upon account of his having been once hid when no sun nor stars appeared. He was esteemed the fountain of day, and his temple was called *the temple of Naiku*. Near this cavern was another temple, in which the canons or priests showed an image of the deity sitting upon a cow. It was called *Dainits No Ray*, "the great representation of the sun." One of their principal gods is *Jakusi*, similar to the Iacchus of the west. Kæmpfer says, that he is the Apollo of the Japanese, and they describe him as the Egyptians did Orus. His temple stands in a town called *Minnoki*: and *Jakusi* is here represented upon a gilt tarate flower; which is said to be the *nymphæa palustris maxima*, or *fabæ Egyptiaca* of Prosper Alpinus. One half of a large scallop shell is like a canopy placed over him; and his head is surrounded with a crown of rays. They have also an idol named *Menippe*, much revered in different parts. Both these, continues our author, relate to the same person, viz. Noah. Kæmpfer, an author of great credit, saw the temple of Dabys, which he truly renders *Daibod*, at Jedo in Japan. By *Daibod* was meant the god Budha, whose religion was styled the *Budso*, and which prevailed greatly upon the Indus and Ganges. Kæmpfer, from whom Mr Bryant takes this account, says, that the people of Siam represent him under the form of a Moor, in a sitting posture, and of a prodigious size. His skin is black, and his hair curled (probably), and the images about him are of the same complexion. "This god was supposed (says Mr Bryant) to have neither father nor mother. By *Budha* we are certainly to understand the idolatrous symbol called by some nations *Buddo*; the same as *Argus* and *Theba* (names for the ark). In the mythology concerning it, we may see a reference both to the machine itself and to the person preserved in it. In consequence of which we find his person also styled *Bod*, *Budha*, and *Buddo*; and in the West *Butus*, *Battus*, and *Beotus*. He was said by the Indians not to have been born in the ordinary way, but to have come to light indirectly through the side of his mother. By Clemens of Alexandria he is called *Bouta*: and in the history of this person, however varied, we may perceive a relation to the arkite deity of the sea, called *Poseidon* or Neptune; also to Arculus and Dionusus, styled *Beotus* and *Thebanus*. Kæmpfer has a curious history of a deity of this sort called *Abutto*; whose temple stood in the province of Bungo, upon the sea shore, near the village of Toma. About a quarter of a German mile before you come to this village, stands a famous temple of the god *Abutto*; which is said to be very eminent for miraculously curing many inveterate distempers, as also for procuring a wind and good passage. For this reason, sailors and passengers always tie some farthings to a piece of wood, and throw it into the sea, as an offering to this *Abutto*, to obtain a favourable wind. The same deity, but under a different name, was worshipped in China. The *Apis*, *Mneuis*, and *Anubis* of Egypt, have often been mentioned and explained, as well as the *Minotaur* of Crete. The same hieroglyphics occur in Japan; and we are informed by Marco Polo, that the inhabitants worship idols of different shapes. Some have the head of an ox, some of a swine, and others the head of a dog.

Deluge. The most common representation in this country is that of *Godso Ten Oo*, or 'the ox-headed prince of heaven.'

"It has already been noticed, that the ark was represented under the symbol of an egg, called the *mundane egg*; which was exposed to the rage of Typhon. It was also described under the figure of a lunette, and called *Selene*, the moon. The person by whom it was framed, and who through its means was providentially preserved, occurs under the character of a steer, and the machine itself under the semblance of a cow or heifer. We have moreover been told that it was called *Cibotus*, which Clemens of Alexandria calls *Thebotha*. Epiphanius mentions it by the name *Idaal Baotb*; and says that, according to an eastern tradition, a person named *Nun* was preserved in it. The horse of Neptune was another emblem, as was also the hippopotamus or river-horse. The people of Elis made use of the tortoise for the same purpose, and represented Venus as resting upon its back. Some traces of these hieroglyphics are to be found in Japan, which were certainly carried thither by the Indic Ethiopians.

"From an account of a temple of *Daiboth* (probably the same with *Daibod*) at Meaco in Japan, we may perceive that the people there speak of the renewal of the world at the deluge as the real creation, which I have shown to be a common mistake in the histories of this event. And though the story is told with some variation, yet in all the circumstances of consequence it accords very happily with the mythology of Egypt, Syria, and Greece. It matters not how the emblems have by length of time been misinterpreted. We have the *mundane egg* upon the waters, and the concomitant symbol of the moon; and the egg at last opened by the assistance of the sacred steer, upon which the world issues forth to this day." The author proceeds afterwards to mention the great veneration paid in these parts to the ox and cow; and says, that nobody dares injure them. One deity of the Japanese was Canon, the reputed lord of the ocean. He was represented in an erect posture, crowned with a flower, and coming out of the mouth of a fish. He is represented in the same manner by the natives of India, and named *Vishnou* and *Macauter*; and he is to be found in other parts of the east. Father Boushet mentions a tradition among the Indians concerning a flood in the days of *Vishnou* which covered the whole earth. It is moreover reported of him, that seeing the prevalence of the waters, he made a float; and being turned into a fish, he steered it with his tail. This person, in the account of the Banians by Lord, is called *Menow*; which certainly should be expressed *Men-Now*. It is said, that in the Shaster of this people, a like history is given of the earth being overwhelmed by a deluge, in which mankind perished; but the world was afterwards renewed in two persons called *Menou* and *Cete-roupa*. *Vishnou* is described under many characters, which he is said at times to have assumed. One of these, according to the bramins of Tanjour, was that of Rama Sami. This undoubtedly is the same as Sama Rama of Babylonia, only reversed: and it relates to that great phenomenon the Iris; which was generally accompanied with the dove, and held in veneration by the Semarim.

"As the history of China is supposed to extend upwards to an amazing height, it may be worth while to consider the first eras in the Chinese annals, as they are represented in the writings of Japan: for the Japanese have preserved histories of China; and by such collation, I believe no small light may be obtained towards the discovery of some important truths. Hitherto it has not been observed that such a collation could be made.

"In the histories of this country, the first monarch of China is named *Fohi*; the same whom the Chinese call *Fohi*, and place at the head of their list. This prince had, according to some, the body, according to others the head, of a serpent. If we may believe the Japanese historians, he began his reign above 21,000 years before Christ. The second Chinese emperor was *Sin-Noo*, by the people of China called *Sin-Num*; and many begin the chronology of the country with him. He is supposed to have lived about 3000 years before Christ; consequently there is an interval of near 18,000 years between the first emperor and the second; a circumstance not to be credited. The third, who immediately succeeded *Sin-Noo*, was *Hoam-Ti*. In this account we may, I think, perceive, that the Chinese have acted like the people of Greece and other regions. The histories which were imported they have prefixed to the annals of their nation; and adopted the first personages of antiquity, and made them monarchs in their own country. Whom can we suppose *Fohi*, with the head of a serpent, to have been, but the great founder of all kingdoms, the father of mankind? They have placed him at an immense distance, not knowing his true era. And I think we may be assured, that under the character of *Sin-Num* and *Sin-Noo* we have the history of Noah; and *Haam-Ti* was no other than Ham. According to Kämpfer, *Sin-Noo* was exactly the same character as *Serapis* of Egypt. 'He was a husbandman, and taught mankind agriculture, and those arts which relate to the immediate support of life. He also discovered the virtues of many plants; and he was represented with the head of an ox, and sometimes only with two horns. His picture is held in high estimation by the Chinese.' Well indeed might Kämpfer think, that in *Sin-Noo* he saw the character of *Serapis*; for his personage was no other than *Sar-Apis*, the great father of mankind, the same as *Men-Neuas* of Egypt, the same also as *Dionusus* and *Osiris*. By Du Halde he is called *Chin-Nong*, and made the next monarch after *Fohi*. The Chinese accounts afford the same history as has been given above.

"As the family of Noah consisted of eight persons inclusive, there have been writers who have placed some of them in succession, and supposed that there were three or four persons who reigned between *Sin-Noo* and *Hoam*. But Du Halde says, that in the true histories of the country, the three first monarchs were *Fohi*, *Chin-Nong*, and *Hoam*, whom he styles *Hoang-Ti*. To these, he says, the arts and sciences owe their invention and progress. Thus we find, that those who were heads of families have been raised to be princes; and their names have been prefixed to the list of kings, and their history superadded to the annals of the country. It is further observable, in the accounts given of those supposed kings, that their term

Deluge.

17
Japanese
history of
China.

Deluge.
18
History of
Japan.

of life, for the first five or six generations, corresponds with that of the patriarchs after the flood, and decreases much in the same proportion.

“ The history of Japan is divided into three eras; which consist of gods, demigods, and mortals. The person whom the natives look upon to be the real founder of their monarchy is named *Synmu*; in whose reign the Sintoo religion, the most ancient of the country, was introduced. It was called *Sin-sju* and *Chami-mitsa*; from Sin and Chami, the deities which were the objects of worship. At this time it is said that 600 foreign idols were brought into Japan. To the Sintoo religion was afterwards added the Budso, together with the worship of Amida. This deity they commonly represented with the head of a dog, and esteemed him the guardian of mankind. This religion was more complicated than the former, and abounded with hieroglyphical representations and mysterious rites. It is the same which I have termed the *Arkite Idolatry*, wherein the sacred steer and cow were venerated. The deity was represented upon the lotus and upon a tortoise, and oftentimes as proceeding from a fish. In this also, under the character of Budha, we may trace innumerable memorials of the ark, and of the person preserved in it. The author above, having mentioned the eleventh emperor inclusive from Syn-Mu, tells us, that in his time these rites began. ‘ In his reign Budo, otherwise called *Kobotus*, came over from the Indies to Japan; and brought with him, upon a white horse, his religion and doctrines.’ We find here, that the object of worship is made the person who introduced it (a mistake almost universally prevalent); otherwise in this short account, what a curious history is unfolded!

“ The only people to whom we can have recourse for any written memorials concerning these things are the inhabitants of India proper. They were, we find, the persons who introduced these hieroglyphics both in China and Japan. It will therefore be worth while to consider what they have transmitted concerning their religious opinions; as we may from hence obtain still greater light towards explaining this symbolical worship. Every manifestation of God’s goodness to the world was in the first ages expressed by an hieroglyphic; and the Deity was accordingly described under various forms, and in different attitudes. These at length were mistaken for real transfigurations; and Vishnou was supposed to have appeared in different shapes, which were styled *incarnations*. In one of these he is represented under the figure before mentioned, of a princely person coming out of a fish. In another he appears with the head of a boar, treading upon an evil dæmon, which seems to be the same as the Typhon of the Egyptians. On his head he supports a lunette, in which are seen cities, towers, in short, all that the world contains. In Baldæus we have a delineation and history of this incarnation. Kircher varies a little in his representation, yet gives him a similar figure of the Deity, and styles him *Vishnou Barachater*. By this I should think was signified Vishnou, “ the offspring of the fish.” The bramins say, that there was a time when the serpent with a thousand heads withdrew itself, and would not support the world, it was so overburdened with sin. Upon this the earth sunk in the great abyss of

waters, and mankind and all that breathed perished. But Vishnou took upon himself the form above described, and diving to the bottom of the sea, lifted up the earth out of the waters, and placed it, together with the serpent of a thousand heads, upon the back of a tortoise.

“ In the third volume of M. Perron’s *Zendavesta*, there is an account given of the cosmogony of the Persees; also of the subsequent great events that ensued. The supreme Deity, called by him *Ormisdâ*, is said to have accomplished the creation at six different intervals. He first formed the heavens; at the second the waters; at the third the earth. Next in order were produced the trees and vegetables: in the fifth place were formed birds and fishes, and the wild inhabitants of the woods; and in the sixth and last place, he created man. The man thus produced is said to have been an *ox-like* person, and is described as consisting of a purely divine and a mortal part. For some time after his creation he lived in great happiness; but at last the world was corrupted by a dæmon named *Abriman*. This dæmon had the boldness to visit heaven: whence he came down to the earth in the form of a serpent, and introduced a set of wicked beings, called *karsesters*. By him the first ox-like personage, called *Aboudad*, was so infected that he died; after which Kaiomorts, probably the divine part, of which the ox was the representative, died also. Out of the left arm of the deceased proceeded a being called *Goschoraun*, who is said to have raised a cry louder than the shout of 1000 men. After some conversation between the supreme Deity and Goschoraun, it was determined to put Abriman to flight, and to destroy all those wicked persons he had introduced; for there now seemed to be an universal opposition to the supreme Deity Ormisdâ. At this season a second ox-like personage, is introduced by the name of *Taschter*. He is spoken of both as a star and a sun. At the same time he is mentioned as a person upon earth under three forms. By *Taschter* is certainly signified *De Ashter*; the same person whom the Greek and Syrians represented as a female, and called *Astarte*. She was described horned, and sometimes with the head of a bull; supposed to proceed from an egg; and they esteemed her the same as Juno and the moon. At last it was thought proper to bring an universal inundation over the face of the earth; that all impurity might be washed away; which being accomplished by *Taschter*, every living creature perished, and the earth was for some time entirely covered. At last, the waters retreating within their proper bounds, the mountain of Albordi in Ferakh-kand first appeared; which the author compares to a tree, and supposes that all other mountains proceeded from it. After this there was a renewal of the world; and the earth was restored to its pristine state. The particular place where Ormisdâ planted the germina from whence all things were to spring, was Ferakh-kand, which seems to be the land of Arach; the country upon the Araxes in Armenia.”

Thus we have given an ample specimen of this very ingenious author’s method of reasoning, and discovering traces of the sacred history even in things which have been thought least to relate to it. That the Greeks and western nations had some knowledge of the

Deluge.

19

Account of
the cosmogony and
deluge
given by the
Persees.

Deluge. the flood, has never been denied; and from what has been already related, it appears that the same has pervaded the remotest regions of the east. The knowledge which these people have of the fall of man, and the evil consequences which ensued, cannot, according to our author, be the consequences of their intercourse with Christians; for their traditions afford neither any traces of Christianity, nor its founder. Whatever truths may be found in their writings, therefore, must be derived from a more ancient source. "There are (says he) in every climate some shattered fragments of original history; some traces of a primitive and universal language: and these may be observed in the names of deities, terms of worship, and titles of honour, which prevail among nations widely separated, who for ages had no connexion. The like may be found in the names of pagodas and temples; and of sundry other objects which will present themselves to the traveller. Even America would contribute to this purpose. The more rude the monuments, the more ancient they may possibly prove, and afford a greater light upon inquiry."

²⁰ American accounts of the deluge. The accounts hitherto met with in this continent, indeed, are far from being equally authentic and satisfactory with those hitherto treated of. In Acofta's history of the Indies, however, we are informed, that the Mexicans make particular mention of a deluge in their country, by which *all men* were drowned. According to them, one *Viracocha* came out of the great lake Titicaca in their country. This person staid in Tiaguanaco, where at this day are to be seen the ruins of some ancient and very strange buildings. From thence he came to Cusco, where mankind began to multiply. They show also a small lake, where they say the sun hid himself: for which reason they sacrifice largely to him, both men and other animals.—Hennepin informs us, that some of the savages are of opinion, that a certain spirit, called *Otkon* by the Iroquois, and *Atabauta* by those at the mouth of the river St Lawrence, is the creator of the world; that *Messou* repaired it after the deluge. They say, that this *Messou* or *Otkon*, being a-hunting one day, his dogs lost themselves in a great lake, which thereupon overflowing, covered the whole earth in a short time, and swallowed up the world. According to Herrera, the people of Cuba knew that the heavens and the earth had been created; and said they had much information concerning the flood; and that the world had been destroyed by water, by three persons, who came three several ways. Gabriel de Cabrera was told by a man of more than 70 years of age, that an old man, knowing the deluge was to come, built a great ship, and went into it with his family and abundance of animals; that he sent out a crow, which did not at first return, staying to feed on the carcases of dead animals, but afterwards came back with a green branch. He is said to have added other particulars nearly consonant to the Mosaic account, as far as Noah's sons covering him when drunk, and the other scoffing at it. The Indians, he said, descended from the latter, and therefore had no clothes: but the Spaniards descending from the former, had both clothes and horses.—The same author likewise informs us, that it was reported by the inhabitants of *Castilla del Oro* in Terra Firma, that when the universal de-

Vol. VII. Part I.

luge happened, one man with his wife and children escaped in a canoe, and that from them the world was peopled. The Peruvians, according to our author, likewise affirmed, that they had received by tradition from their ancestors, that, many years before there were any incas or kings, when the country was very populous, there happened a great flood; the sea breaking out beyond its bounds, so that the land was covered with water, and all the people perished. To this it is added by the Guancas, inhabiting the vale of Xaufea, and the natives of Chiquito in the province of Callao, that some persons remained in the hollows and caves of the highest mountains, who again peopled the land. Others affirm, that all perished in a deluge, only six persons being saved in a float, from whom descended all the inhabitants of that country. In Nieuhoff's voyages to Brazil, we are informed, that the most barbarous of the Brasilians, inhabiting the inland countries, scarce knew any thing of religion or an Almighty Being: they have some knowledge remaining of a general deluge; it being their opinion that the whole race of mankind were extirpated by a general deluge, except one man and his sister, who, being with child before, they by degrees re-peopled the world. M. Thevet gives us the creed of the Brasilians in this matter more particularly. In the opinion of these savages the deluge was universal. They say, that *Sommay*, a Caribbee of great dignity, had two children named *Tamendonare* and *Ariconte*. Being of contrary dispositions, one delighting in peace and the other in war and rapine, they mortally hated each other. One day *Ariconte*, the warrior, brought an arm of an enemy he had encountered to his brother, reproaching him at the same time with cowardice. The other retorted by telling, that if he had been possessed of the valour he boasted, he would have brought his enemy entire. *Ariconte* on this threw the arm against the door of his brother's house. At that instant the whole village was carried up into the sky, and *Tamendonare* striking the ground with violence, a vast stream of water issued out from it, and continued to flow in such quantity, that in a short time it seemed to rise above the clouds, and the earth was entirely covered. The two brothers, seeing this, ascended the highest mountains of the country, and with their wives got upon the trees that grew upon them. By this deluge all mankind, as well as all other animals, were drowned, except the two brothers above-mentioned and their wives, who having descended when the flood abated, became heads of two different nations," &c.

To these American testimonies we may add another ²¹ Testimonies from Dr Watson*, in his discourse to the clergy, informs ^{Otaheite and the East Indies.} us, that one of the navigators to the southern hemisphere having asked some of the inhabitants of that ^{* Sermons and Travels,} island concerning their origin, was answered, that ^{p. 208.} their supreme God, a long time ago, being angry, dragged the earth through the sea, and their island being broken off, was preserved. In the East Indies, we are informed by Dr Watson †, that Sir William † ^{Ibid.} Jones, by whom a society for the advancement of Asiatic literature was instituted at Calcutta, discovered in the oldest mythological books of that country, such an account of the deluge as corresponds sufficiently with that of Moses.

T

II. The

Deluge.

22
Hypotheses
concerning
the means
by which
the deluge
took place.

23
Supposed
creation
and annihi-
lation of
water.

24
Theory of
Dr Burnet.

* See *Abyfs*.

25
Centre of
gravity of
the earth
supposed to
be shifted.

II. The fact being thus established by the universal consent of mankind, that there was a general deluge which overflowed the whole world; it remains next to inquire, by what means it may reasonably be supposed to have been accomplished. The hypotheses on this subject have been principally the following.

1. It has been asserted, that a quantity of water was created on purpose, and at a proper time annihilated, by divine power. This, however, besides its being absolutely without evidence, is directly contrary to the words of the sacred writer whom the assertors of this hypothesis mean to defend. He expressly derives the waters of the flood from two sources; first, the fountains of the great deep, which he tells us were all broken up; and secondly, the windows of heaven, which he says were opened: and speaking of the decrease of the waters, he says, the fountains of the deep and the windows of heaven were stopped, and the waters returned continually from off the earth. Here it is obvious, that Moses was so far from having any difficulty about the quantity of water, that he thought the sources from whence it came were not exhausted; since both of them required to be stopped by the same almighty hand who opened them, lest the flood should increase more than it actually did.

2. Dr Burnet, in his *Telluris Theoria Sacra*, endeavours to show, that all the waters in the ocean were not sufficient to cover the earth to the depth assigned by Moses. Supposing the sea drained quite dry, and all the clouds of the atmosphere dissolved into rain, we should still, according to him, want much the greatest part of the water of a deluge. To get clear of this difficulty, Dr Burnet and others have adopted Descartes's theory. That philosopher supposes the antediluvian world to have been perfectly round and equal, without mountains or valleys. He accounts for its formation on mechanical principles, by supposing it at first in the condition of a thick turbid fluid replete with divers heterogeneous matters; which, subsiding by slow degrees, formed themselves into different concentric strata, or beds, by the laws of gravity. Dr Burnet improves on this theory, by supposing the primitive earth to have been no more than a shell or crust investing the surface of the water contained in the ocean, and in the central abyfs which he and others suppose to exist in the bowels of the earth*. At the time of the flood, this outward crust, according to him, broke in a thousand places; and consequently sunk down among the water, which thus spouted up in vast cataracts, and overflowed the whole surface. He supposes also, that before the flood there was a perfect coincidence of the equator with the ecliptic, and consequently that the antediluvian world enjoyed a perpetual spring; but that the violence of the shock by which the outer crust was broken, shifted also the position of the earth, and produced the present obliquity of the ecliptic. This theory, it will be observed, is equally arbitrary with the former. But it is, besides, directly contrary to the words of Moses, who assures us, that all the high hills were covered; while Dr Burnet affirms that there were then no hills in being.

3. Other authors, supposing a sufficient fund of water in the abyfs or sea, are only concerned for an expedient to bring it forth: accordingly some have re-

course to a shifting of the earth's centre of gravity, which, drawing after it the water out of its channel, overwhelmed the several parts of the earth successively.

4. The inquisitive Mr Whiston, in his *New Theory of the Earth*, shows, from several remarkable coincidences, that a comet descending in the plane of the ecliptic, towards its perihelion, passed just before the earth on the first day of the deluge; the consequences whereof would be, first, that this comet, when it came below the moon, would raise a vast and strong tide, both in the small seas, which according to his hypothesis were in the antediluvian earth (for he allows no great ocean there as in ours), and also in the abyfs which was under the upper crust of the earth. And this tide would rise and increase all the time of the approach of the comet towards the earth; and would be at its greatest height when the comet was at its least distance from it. By the force of which tide, as also by the attraction of the comet, he judges, that the abyfs must put on an elliptical figure, whose surface being considerably larger than the former spherical one, the outward crust of the earth, incumbent on the abyfs, must accommodate itself to that figure, which it could not do while it held solid, and conjoined together. He concludes, therefore, that it must of necessity be extended, and at last broken by the violence of the said tides and attraction; out of which the included water issuing, was a great means of the deluge; this answering to what Moses speaks of the "fountains of the great deep being broke open."—Again, the same comet, he shows, in its descent towards the sun, passed so close by the body of the earth, as to involve it in its atmosphere and tail for a considerable time; and of consequence left a vast quantity of its vapours, both expanded and condensed, on its surface; a great part of which being rarefied by the solar heat, would be drawn up into the atmosphere, and afterwards return in violent rains: and this he takes to be what Moses intimates by "the windows of heaven being opened," and particularly by the "forty days rain." For as to the following rain, which with this made the whole time of raining 150 days, Mr Whiston attributes it to the earth coming a second time within the atmosphere of the comet, as the comet was on its return from the sun. Lastly, to remove this vast orb of waters again, he supposes a mighty wind to have arisen, which dried up some, and forced the rest into the abyfs through the clefts by which it came up: only a good quantity remained in the alveus of the great ocean, now first made, and in lesser seas, lakes, &c. This theory was at first only proposed as an hypothesis; but, on further consideration, Mr Whiston thought he could actually prove that a comet did at that time pass very near the earth, and that it was the same which afterwards appeared in 1688. After this he looked upon his theory no longer as an hypothesis, but published it in a particular tract, entitled *The Cause of the Deluge demonstrated*. But the uncertainty of the comet's return in 1758, and the absolute failure of that which ought to have appeared in 1788 or 1789, must certainly render Mr Whiston's calculations for such a length of time extremely dubious: and the great similarity between the tails of comets, and streams of electric matter, renders his supposition

Deluge.

26
Mr Whiston's theory.

Deluge. position of their being aqueous vapours exceedingly improbable.

²⁷
Theory of
Mr de la
Prymes

5. According to Mr de la Pryme, the antediluvian world had an external sea as well as land, with mountains, rivers, &c. and the deluge was effected by breaking the subterraneous caverns and pillars thereof, with dreadful earthquakes, and causing the same to be for the most part, if not wholly, absorbed and swallowed up, and covered by the seas that we now have. Lastly, this earth of ours arose out of the bottom of the antediluvian sea: and in its room, just as many islands are swallowed down, and others thrust up in their stead. On this, as on all the other hypotheses, it may be remarked, that it is quite arbitrary, and without the least foundation from the words of Moses. The sacred historian speaks not one word of earthquakes, nay, from the nature of the thing, we know it is impossible that the flood could have been occasioned by an earthquake, and the ark preserved, without a miracle. It is certain, that if a ship sinks at sea, the commotion excited in the water by the descent of such a large body, will swallow up a small boat that happens to come too near. If the pillars of the earth itself then were broken, what must the commotion have been, when the continents of Europe, Asia, and Africa, descended into the abyss at once; not to mention America, which lying at so great a distance from Noah, he might be supposed out of danger from that quarter. By what miracle was the little ark preserved amidst the tumult of those impetuous waves which must have rushed in from all quarters? Besides, as the ark was built not at sea, but on dry ground, when the earth on which it rested sunk down, the ark must have sunk along with it; and the waters falling in as it were overhead, must have dashed in pieces the strongest vessel that can be imagined. Earthquakes, also, operate suddenly and violently; whereas, according to the Mosaic account, the flood came on gradually, and did not arrive at its height till six weeks, or perhaps five months, after it began.

²³
Hutchinsonian theory.

6. Mr Hutchinson and his followers present us with a theory of the deluge, which they pretend to derive from the word of God itself. This theory hath been particularly enlarged upon and illustrated by Mr Catcot, who in 1768 published a volume on the subject. This gentleman asserts, that when the world was first created, at the time when it is said to have been "without form and void," the terrestrial matter was then entirely dissolved in the aqueous; so that the whole formed, as it were, a thick muddy water. The figure of this mass was spherical; and on the outside of this sphere lay the gross dark air. Within the sphere of earth and water was an immense cavity, called by Moses the *deep*; and this internal cavity was filled with air of a kind similar to that on the outside. On the creation of light, the internal air received elasticity sufficient to burst out through the external covering of earth and water. Upon this the water descended, filled up the void, and left the earth in a form similar to what it hath at present. Thus, according to him, the antediluvian world, as well as the present, consisted of a vast collection or nucleus of water, called the *great deep*, or the *abyss*; and over this the shell of earth perforated in many places; by which means the waters of the ocean communicated with the abyss.

The breaking up of these fountains was occasioned by a miraculous pressure of the atmosphere, from the immediate action of the Deity himself. So violent was this pressure, that the air descended to where it had been originally; occupied the space of the abyss; and drove out the waters over the whole face of the dry land. But this account, so far from being infallibly certain, seems inconsistent with the most common observation. No pressure, however violent, will cause water rise above its level, unless the pressure is unequal. If, therefore, the atmosphere entered into the supposed abyss, by a vehement pressure on the surface of the ocean, that pressure must only have been on one place, or on a few places; and even though we suppose the atmosphere to have been the agent made use of, it is impossible that it could have remained for any time in the abyss without a continued miracle; as the pressure of the water would immediately have forced it up again through those holes which had afforded it a passage downwards.

The explication given from Hutchinson by Mr Catcot, of the "windows of heaven," is somewhat extraordinary. According to him, these windows are not in heaven, but in the bowels of the earth; and mean no more than the cracks and fissures by which the *airs*, as he calls them, found a passage through the shell or covering of earth, which they utterly dissolved and reduced to its original state of fluidity. It is, however, difficult to conceive how the opening of such windows as these, could cause a violent rain for 40 days and nights.

It is not to be supposed, that we can pretend to ascertain any thing on the subject more than others have done. The following conjectures, however, may be offered on the manner in which the deluge might have happened, without any violence to the established laws of nature.

1. If we consider the quantity of water requisite for the purpose of the deluge, it will not appear so very extraordinary as has been commonly represented. The height of the highest hills is thought not to be quite four miles. It will therefore be deemed a sufficient allowance, when we suppose the waters of the deluge to have been four miles deep on the surface of the ground. Now it is certain, that water, or any other matter, when spread out at large upon the ground, seems to occupy an immense space in comparison of what it does when contained in a cubical vessel, or when packed together in a cubical form. Suppose we wanted to overflow a room 16 feet every way, or containing 256 square feet, with water, to the height of one foot, it may be nearly done by a cubical vessel of six feet filled with water. A cube of eight feet will cover it two feet deep, and a cube of ten feet will very nearly cover it four feet deep. It makes not the least difference whether we suppose feet or miles to be covered. A cube of ten miles of water would very nearly overflow 256 square miles of plain ground to the height of four miles. But if we take into our account the vast number of eminences with which the surface of the earth abounds, the above-mentioned quantity of water would do a great deal more. If, therefore, we attempt to calculate the quantity of water sufficient to deluge the earth, we must make a very considerable allowance for the bulk of all the hills on its surface.

Deluge.

²⁹
Another theory.

Deluge. To consider this matter, however, in its utmost latitude: The surface of the earth is supposed, by the latest computations, to contain 199,512,595 square miles. To overflow this surface to the height of four miles, is required a parallelopiped of water 16 miles deep, and containing 49,878,148 square miles of surface. Now, considering the immense thickness of the globe of the earth, it can by no means be improbable, that this whole quantity of water may be contained in its bowels, without the necessity of any remarkable abyss or huge collection of water, such as most of our theorists suppose to exist in the centre. It is certain, that as far as the earth has been dug, it hath been found not dry, but moist; nor have we the least reason to imagine, that it is not at least equally moist all the way down to the centre. How moist it really is cannot be known, nor the quantity of water requisite to impart to it the degree of moisture it has; but we are sure it must be immense. The earth is computed to be near 8000 miles in diameter. The ocean is of an unfathomable depth; but there is no reason for supposing it more than a few miles. To make all reasonable allowance, however, we shall suppose the whole solid matter in the globe to be only equal to a cube of 5000 miles; and even on this supposition we shall find, that all the waters of the deluge would not be half sufficient to moisten it. The above-mentioned parallelopiped of water would indeed contain 798,050,368 cubic miles of the fluid; but the cube of earth containing no less than an hundred and twenty-five thousand millions of cubic miles, it is evident that the quantity assigned for the deluge would scarce be known to moisten it. It could have indeed no more effect this way, than a single pound of water could have upon 150 times its bulk of dry earth. We are persuaded therefore, that any person who will try by experiment how much water a given quantity of earth contains, and from that experiment will make calculations with regard to the whole quantity of water contained in the bowels of the earth, must be abundantly satisfied, that though *all* the water of the deluge had been thence derived, the diminution of the general store would, comparatively speaking, have been next to nothing.

2. It was not from the bowels of the earth only that the waters were discharged, but also from the air; for we are assured by Moses, that it rained 40 days and 40 nights. This source of the diluvian waters hath been considered as of small consequence by almost every one who hath treated on the subject. The general opinion concerning this matter we shall transcribe from the Universal History, Vol. I. where it is very fully expressed. "According to the observations made of the quantity of water that falls in rain, the rains could not afford one ocean, nor half an ocean, and would be a very inconsiderable part of what was necessary for a deluge. If it rained 40 days and 40 nights throughout the whole earth at once, it might be sufficient to lay all the lower grounds under water, but it would signify very little as to the overflowing of the mountains; so that it has been said, that if the deluge had been made by rains only, there would have needed not 40 days, but 40 years, to have brought it to pass. And if we suppose the whole atmosphere condensed into water, it would not all have been sufficient for this effect; for it is certain that it could not have risen

above 32 feet, the height to which water can be raised by the pressure of the atmosphere: for the weight of the whole air, when condensed into water, can be no more than equal to its weight in its natural state, and must become no less than 800 times denser; for that is the difference between the weight of the heaviest air and that of water."

On this subject we must observe, that there is a very general mistake with regard to the air, similar to the above-mentioned one regarding the earth. Because the earth below our feet appears to our senses firm and compact, therefore the vast quantity of water, contained even in the most solid parts of it, and which will readily appear on proper experiment, is overlooked, and treated as a non-entity. In like manner, because the air does not always deluge with excessive rains, it is also imagined that it contains but very little water. Because the pressure of the air is able to raise only 32 feet of water on the surface of the earth, it is therefore supposed we may know to what depth the atmosphere could deluge the earth if it was to let fall the *whole* water contained in it. But daily observation shows, that the pressure of the atmosphere hath not the least connexion with the quantity of water it contains. Nay, if there is any connexion, the air seems to be lightest when it contains most water. In the course of a long summer's drought, for instance, the mercury in the barometer will stand at 30 inches, or little more. If it does so at the beginning of the drought, it ought to ascend continually during the time the dry weather continues; because the air is all the while absorbing water in great quantity from the surface of the earth and sea. This, however, is known to be contrary to fact. At such times the mercury does not ascend, but remains stationary; and what is still more extraordinary, when the drought is about to have an end, the air, while it yet contains the whole quantity of water it absorbed, and hath not discharged one single drop, becomes suddenly lighter, and the mercury will perhaps sink an inch before any rain falls. The most surprising phenomenon, however, is yet to come. After the atmosphere has been discharging for a number of days successively, a quantity of matter 800 times heavier than itself, instead of being *lightened* by the discharge, it becomes *heavier*, nay, *specifically* heavier, than it was before. It is also certain, that very dry air, provided it is not at the same time very hot, is always heaviest; and the driest air which we are acquainted with, namely Dr Priestley's *dephlogisticated* air (oxygen gas), is considerably heavier than the air we commonly breathe. For these reasons, we think the quantity of water contained in the whole atmosphere ought to be considered as *indefinite*, especially as we know that by whatever agent it is suspended, that agent must counteract the force of gravity, otherwise the water would immediately descend; and while the force of gravity in any substance is counteracted, that substance cannot appear to us to gravitate at all.

3. The above considerations render it *probable* at least that there is in nature a quantity of water sufficient to deluge the world, provided it was applied to the purpose. We must next consider whether there is any natural agent powerful enough to effectuate this purpose. We shall take the phrases used by Moses in their most obvious sense. *The breaking up of the fountains of the deep,*

Deluge. deep, we may reasonably suppose to have been the opening of all passages, whether small or great, through which the subterraneous waters possibly could discharge themselves on the surface of the earth. The opening of the windows of heaven we may also suppose to be the pouring out the water contained in the atmosphere, through those invisible passages by which it enters in such a manner as totally to elude every one of our senses, as when water is absorbed by the air in evaporation. As both these are said to have been opened at the same time, it seems from thence probable, that one natural agent was employed to do both. Now it is certain, that the industry of modern inquiry hath discovered an agent unknown to the former ages, and whose influence is so great, that with regard to this world, it may be said to have a kind of *omnipotence*. The agent we mean is electricity. It is certain, that, by means of it, immense quantities of water can be raised to a great height in the air. This is proved by the phenomena of water-spouts. Mr Forster relates, that he happened to see one break very near him, and observed a flash of lightning proceed from it at the moment of its breaking. The conclusion from this is obvious. When the electric matter was discharged from the water, it could no longer be supported by the atmosphere, but immediately fell down. Though water spouts do not often appear in this country, yet every one must have made an observation somewhat similar to Mr Forster's. In a violent storm of thunder and rain, after every flash of lightning or discharge of electricity from the clouds, the rain pours down with increased violence; thus showing, that the cloud, having parted with so much of its electricity, cannot longer be supported in the form of vapour, but must descend in rain. It is not indeed yet discovered that electricity is the cause of the suspension of water in the atmosphere; but it is certain that evaporation is promoted by electrifying the fluid to be evaporated*. It may therefore be admitted as a possibility, that the electric fluid contained in the air is the agent by which it is enabled to suspend the water which rises in vapour. If therefore the air is deprived of the due proportion of this fluid, it is evident that rain must fall in prodigious quantities.

* See Electricity and Evaporation.

Again, we are assured from the most undeniable observations, that electricity is able to swell up water on the surface of the earth. This we can make it do even in our trifling experiments; and much more must the whole force of the fluid be supposed capable of doing it, if applied to the waters of the ocean, or any others. The agitation of the sea in earthquakes is a sufficient proof of this †. It is certain, that at these times there is a discharge of a vast quantity of electric matter from the earth into the air; and as soon as this happens, all becomes quiet on the surface of the earth.

† See Earthquake.

From a multitude of observations it also appears, that there is at all times a passage of electric matter from the atmosphere into the earth, and *vice versa*, from the earth into the atmosphere. There is therefore no absurdity in supposing the Deity to have influenced the action of the natural powers in such a manner, that for 40 days and nights the electric matter contained in the atmosphere should descend into the bowels of the earth,—if indeed there is occasion for supposing any such immediate influence at all, since it is not impossible that there might have been, from some na-

tural cause, a descent of this matter from the atmosphere for that time. But by whatever cause the descent was occasioned, the consequence would be, the breaking up of the fountains of the deep, and the opening the windows of heaven. The water contained in the atmosphere being left without support, would descend in impetuous rains; while the waters of the ocean, those from which fountains originate, and those contained in the solid earth itself, would rise from the very centre, and meet the waters which descended from above. Thus the breaking up of the fountains of the deep, and the opening the windows of heaven, would accompany each other, as Moses tells us they actually did; for, according to him, both happened on the same day.

In this manner the flood would come on quietly and gradually, without that violence to the globe which Burnet, Whiston, and other theorists, are obliged to suppose. The abatement of the waters would ensue on the ascent of the electric fluid to where it was before. The atmosphere would then absorb the water as formerly; that which had ascended through the earth would again subside; and thus every thing would return to its pristine state.

III. Having thus shown in what manner it is possible that an universal deluge might take place by means of the natural agents known to us at present, we shall next consider some more of the evidences that such an event actually did happen, and that the deluge was universal. The proof here is so strong from the traditions prevalent among almost every nation on the face of the earth, and which have been already so amply treated, that no farther objection could be made to the Mosaic account, were it not that the necessity of an universal deluge is denied by some, who contend that all the deluges mentioned in history or recorded by tradition were only partial, and may be accounted for from the swelling of rivers or other accidental causes. Many indeed, even of those who profess to believe the Mosaic account, have thought that the deluge was not universal; or, though it might be universal with respect to mankind, that it was not so with regard to the earth itself. The learned Isaac Vossius was of this opinion, though his reasons seem principally to have been that he could not conceive how an universal deluge could happen. "To effect this (says he) many miracles must have concurred; but God works no miracles in vain. What need was there to drown those lands where no men lived, or are yet to be found! 'Tis a foolish thing to think that mankind had multiplied so much before the flood as to have overspread all the earth. How slow and sluggish the first men were in propagating their kind; is evident from hence, that Noah was but the ninth in a lineal descent from Adam. They are quite wide of the truth, therefore, who think mankind to have spread over all the earth in the days of Noah, who perhaps at that time had not extended themselves beyond the borders of Syria and Mesopotamia: but no reason obliges us to extend the inundation of the deluge beyond those bounds which are inhabited; yea, it is altogether absurd to aver, that the effect of a punishment inflicted upon mankind only, should extend to those places where no men lived. Although we should therefore believe that part of the earth only to have been overflowed

Deluge.

30
Vossius's
scheme of a
partial de-
luge.

overflowed

Deluge.

overflowed by the waters which we have mentioned, and which is not the hundredth part of the terrestrial globe, the deluge will nevertheless be *universal, æcumenical*, since the destruction was universal, and overwhelmed the whole habitable world."

31
Coetlogon's
scheme.

Another scheme of a partial deluge is published by Mr Coetlogon in his *Universal History of Arts and Sciences*, under the article *ANTEDILUVIANS*. This appears to have been formed with a design to accommodate the belief of a deluge to the opinions of the free-thinkers, who deny the truth of the Mosaic accounts, as he tells us that they are willing to allow it. According to this author, the first inhabitants of the earth being placed at the confluence of two great rivers, the Euphrates and Tigris, those rivers may have overflowed their banks all of a sudden, and surprised the neighbouring inhabitants not yet accustomed to such sorts of visits, and drowned part of them (and if really designed as a punishment), such as were more guilty. That some of the animals, particularly the more slothful, and consequently not so apprehensive of danger or so ready to take to flight to avoid it, might have been involved in the same calamity, as well as some of the *volatiles*, which being deprived of food by the earth's being covered with water, might have perished; particularly those who, by the too great weakness of their wings to support their bodies, were not proper for a long flight. As for others who had these advantages above the rest, they would no doubt take care of their own preservation, by flying to those parts of the earth which their natural instinct could show them free from the inundation.

32
Bishop Still-
ingfleet's
scheme.

A third scheme of a partial deluge is given by the learned Bishop Stillingfleet in his *Origines Sacrae*. "I cannot (says he) see any urgent necessity from the Scripture to assert, that the flood did spread itself all over the surface of the earth. That all mankind (those in the ark excepted) were destroyed by it, is most certain, according to the Scripture. When the Lord said, that he would destroy man from the face of the earth, it could not be any particular deluge of so small a country as Palestine, as some have ridiculously imagined; for we find an universal corruption in the earth mentioned as the cause; an universal threatening upon all men for this cause; and afterwards an universal destruction expressed as the effect of this flood. So then it is evident, that the flood was universal with regard to mankind; but from thence follows no necessity at all of asserting the universality of it as to the globe of the earth, unless it be sufficiently proved that the whole earth was peopled, before the flood, which I despair of ever seeing proved; and what reason can there be to extend the flood beyond the occasion of it, which was the corruption of mankind?—The only probability then of asserting the universality of the flood, as to the globe of the earth, is from the destruction of all living creatures, together with man. Now though men might not have spread themselves over the whole surface of the earth, yet beasts and creeping things might, which were all destroyed with the flood; for it is said, 'that all flesh died that moved upon the earth, both of fowl and of cattle, and of every creeping thing that creepeth upon the earth, and every man.' To what end should there be not only a note of universality added, but such

a particular enumeration of the several kinds of beasts, creeping things and fowls, if they were not all destroyed? To this I answer; I grant that, as far as the flood extended, all these were destroyed: but I see no reason to extend the destruction of these beyond that compass and space of the earth where men inhabited, because the punishment upon the beasts was occasioned by, and could not be concomitant with, the destruction of man; but (the occasion of the deluge being the sin of man, who was punished in the beasts that were destroyed for his sake, as well as in himself) where the occasion was not, as where there were animals and no men, there seems no necessity of extending the flood thither.—But to what end, will it therefore be replied, did God command Noah, with so much care, to take all kinds of birds, beasts, and creeping things, into the ark with him, if all these living creatures were not destroyed by the flood? I answer, because all those things were destroyed wherever the flood was. Suppose then the whole continent of Asia was peopled before the flood, which is as much as in reason we may suppose; I say, all the living creatures in that continent were destroyed; or if we may suppose it to have extended over our whole continent of the ancient known world, what reason would there be, that in the opposite part of the globe, which we suppose to be unpeopled then, all the living creatures should there be destroyed, because men had sinned in this? and would there not have been on this supposition a sufficient reason to preserve living creatures in the ark for future propagation?" &c.

Thus we have the strength of all the arguments that have been offered in support of a partial deluge, and which may all be summed up in the three following articles: 1. The impossibility, in a natural way of accounting for the quantity of water, necessary to overflow the whole world; 2. The small number of mankind supposed at that time to have existed on the earth; and, 3. The inutility of an universal deluge, when the divine purposes could have been equally well answered by a partial one. But to all this we may make one general answer, that a partial deluge is in the nature of things impossible. We cannot imagine that the waters could accumulate upon any country without going off to the sea, while the latter retained its usual level; neither can we suppose any part of the sea to remain above the level of the rest. On the supposition of Bishop Stillingfleet, therefore, that the deluge extended over the whole continent of Asia, we know that it must have covered the high mountains of Ararat, on which the ark rested: Caucasus, Taurus, &c. The height of Ararat is indetermined, as no traveller of any credit pretends to have ascended to its top; but from the distance at which it is seen, we can scarce look upon it to be inferior to the most celebrated mountains of the old continent*. Sir John Chardin thinks that some part of Caucasus is higher; and supposing each of these to be only a mile and a half in height, the sea all round the globe must have been raised to the same height; and therefore all that could remain of dry ground as a shelter to animals of any kind, must have been the uninhabitable tops of some high mountains scattered at immense distances from one another. We may therefore with equal reason suppose that these were in like manner

33
A partial
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* See Ara-
rat.

Deluge. manner covered, and that no living creature whatever could find shelter even for a moment: and it is certainly more agreeable to the character of the Deity to believe, that he would at once destroy animal life by suffocation in water, rather than allow numbers of them to collect themselves on the tops of mountains to perish with hunger and cold. It is besides very improbable, that any creature, whether bird or beast, could sustain a continued rain of 40 days and 40 nights, even without supposing them to have been absolutely immersed in water.

This consideration alone is sufficient to show, that if there was a deluge at all, it must have been universal with regard to the world as well as the human race; and the possibility of such a deluge by natural means has already been evinced. Under the article *ANTEDILUVIANS* it is shown, that, according to the most moderate computation, the world must have been vastly more full of people than at present. The least calculation there made indeed seems incredible; since, according to it, the world must have contained upwards of 68,719 times as many inhabitants as are at present to be met with in the empire of China, the most populous country in the world: but China bears a much larger proportion to the habitable part of the world than this. The violences exercised by mankind upon one another have always been the means of thinning their numbers, and preventing the earth from being overstocked with inhabitants; and the strong expression in Scripture, that the "earth was filled with violence," shows that it must have gone to an extraordinary height. But though this violence must have undoubtedly thinned the old world of its inhabitants, it must likewise have dispersed some of them into distant regions. There is therefore no reason for supposing, that before the flood the human race were not driven into the remotest regions of the habitable world, or that America was destitute of inhabitants then more than it is at present. At any rate, the schemes of Vossius and Coetlogon, who would confine the whole race of mankind to a small part of Asia, must appear evidently futile and erroneous in the highest degree.

³⁴ Objections from some species of animals being peculiar to certain countries. Some objections have been made to the doctrine of an universal deluge from the state of the continent of America, and the number of animals peculiar to that and other countries, which could not be supposed to travel to such a distance either to or from the ark of Noah. On this subject Bishop Stillingfleet observes, that the supposition of animals being propagated much farther in the world than mankind before the flood, seems very probable, "because the production of animals is parallel in Genesis with that of fishes, and both of them different from man. For God saith, Let the waters bring forth every moving creature that hath life, viz. fish and fowl: And accordingly it is said, that the waters brought forth abundantly every living creature after their kind, and every fowl after his kind. Accordingly, in the production of beasts, we read, 'Let the earth bring forth the living creature after his kind, cattle, and every creeping thing, and beast of the earth, after his kind: and it was so.' But in the production of man it is said, 'Let us make man in our image, and after our likeness.' From hence I observe this difference between the formation of animals and of man, that in one God gave a prolific

power to the earth and waters for the production of the several living creatures which came from them, so that the seminal principles of them were contained in the matter out of which they were produced; which was otherwise in man, who was made by a peculiar hand of the great Creator himself, who thence is said to have formed man out of the dust of the ground.

"If now this supposition be embraced, by it we presently clear ourselves of many difficulties concerning the propagation of animals in the world, and their conservation in the ark; as how the unknown kind of serpent in Brazil, the slow-bellied creature in the Indies, and all those strange species of animals seen in the West Indies, should either come into the ark of Noah, or be conveyed out of it into those countries which are divided by so vast an ocean on one side, and at least so large a tract of land on the other. Besides, some kind of animals cannot live out of the climate where they are; and there are many sorts of animals discovered in America and the adjoining islands, which have left no remainder of themselves in these parts of the world. And it seems strange, that these should propagate into those parts of the world from the place of the flood, and leave none at all of their number behind them in these parts whence they were propagated."

To this Mr Cockburn, in his treatise on the deluge, ³⁵ replies, 1. That as it pleased God to create only one man and one woman at the beginning, and their posterity were sufficient to overspread the earth, it might well be supposed to be furnished with animals from an original pair of each. 2. On the supposition of many pairs of brute animals having been created originally, they must, when the human race were few in number, have multiplied to such a degree as to render the world uninhabitable. In confirmation of this, he informs us from the accounts of the Indian missionaries, that in the kingdom of Champua in the Indies, the river called by the natives *Tinacoreu*, but by the Portuguese *Varella*, goes up 80 leagues into the country to a mountain called *Moncalor*, above which it is much broader, but not so deep by far; there being banks of sand in some places, and lands overflowed with water, where there are an infinite number of fowls that cover all the country; insomuch, that by reason of them the whole kingdom of Chintalchuhos had for 40 years been desolate, though it was eight days journey in length; which, at 30 miles a-day, made it 240 miles long. After passing this country, another was met with more wild, and full of great rocks; where there were a vast number of animals yet worse than the fowls, as elephants, rhinoceroses, lions, bears, buffaloes, and other beasts in such multitudes, that whatever men cultivated for the support of life was spoiled or destroyed by them, nor was it possible for the inhabitants to prevent it.

The isle of France may be said to be the kingdom of rats. They come down from the mountains like an army, creep up the steepest rocks, march into the flat country, assemble in the marshy grounds, and bring desolation everywhere, especially in the night. Men can scarce sleep for them, and are obliged to roll themselves in such things as may best secure them from their bitings. It was the same in the isle of Bourbon, which was as much infested with them at first, till it became

³⁶ Countries rendered uninhabitable by the abundance of brute creatures.

Deluge. became more fully peopled. "We have good reason therefore (says Mr Cockburn) to conclude, that there was but one pair of animals created at first, that they might not increase too fast for mankind; and though they would multiply much more, and increase faster than men could do, they had room to spread themselves for a long time without much annoyance to man; and as men increased in number, and extended their habitations, they would be able to drive them further off, or defend themselves from their depredations." The same mode of reasoning is by our author made use of with regard to aquatic animals. The multitude of these indeed, however great, could be no detriment to man, who lived on land; but if we consider how large and numerous a spawn fishes cast at once, and in how short a time they multiply to immense numbers, he thinks it reasonable to conclude, that only one pair was created at once; and that the command to the waters to bring forth abundantly both fish and fowl, related only to the variety of species, not to a number of each.

37
Vaſt in-
crease of
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3. Though at the reſtoration of the world it was to be re-peopled by ſix perſons inſtead of two, and though at the ſame time animal food was given to man, yet Noah was commanded only to take a ſingle pair of each of the animals, clean beaſts, which are but few in number, only excepted. It is further obſervable, that notwithstanding this ſcanty ſupply of animals, they had increaſed ſo much by the time of Nimrod, that it then became neceſſary to hunt and deſtroy them; and Nimrod was celebrated for his courage and ſkill in that neceſſary employment. "So numerous (adds he) were the animals before the flood, though but two of a kind were created, that Dr Woodward, from the remains of that earth, as well the animal as vegetable productions of it ſtill preferred, concludes, that at the time the deluge came, the earth was ſo loaded with herbage, and ſo thronged with animals, that ſuch an expedient was even wanting to eaſe it of the burden, and to make room for a new ſucceſſion of its productions."

38
Of the peo-
pling of A-
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migration
of animals
to it.

4. Mr Cockburn is of opinion, that America muſt have been peopled before the flood, as the old continent could not be ſuppoſed able to hold the number of inhabitants.

5. With regard to the main difficulty, viz. how the animals peculiar to different countries could travel to ſuch diſtances to and from the ark, Mr Cockburn replies, that America, which Biſhop Stillingfleet chiefly inſiſts upon, has nothing peculiar to it, but what may equally well be urged both with reſpect to Aſia and Africa; each of them having animals peculiar to themſelves. It is alſo poſſible, that there might formerly be a more eaſy communication between the Aſiatic and American continents than there is now. See the article AMERICA, N^o 101—113.

Our author likewiſe obſerves, that though the ark reſted on Mount Ararat, yet we are not told where it was built, which might be far enough from the place where it is commonly ſuppoſed; ſo that theſe animals which are peculiar to America might not have ſo far to travel to the ark as is commonly imagined. This argument, however, ſeems to be very inconcluſive; for though we ſhould ſuppoſe the ark to have been conſtructed in America itſelf, the animals of Meſo-

tamia would have had as far to travel from thence to America, as the American animals from their own country to Meſopotamia, according to the common opinion. But in whatever part of the earth Noah lived and the ark was built, it was at God's command that the ſeveral kinds of animals came thither in order to their preſervation; and his command could bring them from the ſurtheſt parts of the earth during the 120 years that all the world lay under condemnation. Though after all, none of the animals might have very far to travel to the ark; for if only one pair of each kind was created at firſt, and all of theſe in or near one place, ſince they were all brought before Adam, and received names from him, there is no abſurdity in ſuppoſing that ſome of every kind might remain in the country where they were firſt produced, from thence Noah's habitation might not be very diſtant. Neither can any objection be brought from the extinction of ſome ſpecies of animals in certain countries of the world, ſince they might have been hunted and deſtroyed either by the human race or by other creatures. Thus it is ſaid, that there are now few or no deer in Switzerland, though formerly there were a great many when it was full of woods. In Britain alſo there are no wolves now to be found, though the iſland was in-ſeſted with them in former times.

In conſidering the ſubject of the deluge, among other questions which occur, one is, by what means were ravenous animals, which feed only upon fleſh, ſuppoſed in the ark? For this ſome authors have ſuppoſed, that Noah, beſides theſe animals whom he took into the ark for preſervation, took likewiſe a great number for ſlaughter. For this purpoſe Biſhop Wilkins has allowed no fewer than 1825 ſheep, though he was of opinion that there were no carnivorous animals before the flood; and this latter opinion is adopted by Mr Cockburn. The idea indeed of ſlaughtering a number of harmleſs animals to ſatisfy a few vile rapacious ones, and that too in a place deſigned for the common aſylum of the animal creation, ſeems inconſiſtent with that ſcheme of mercy diſplayed in the whole tranſaction. It is by much the more probable ſuppoſition then, that though ſome animals had been accuſtomed to live on fleſh in their natural ſtate, they could nevertheleſs ſubſiſt upon vegetable food. This ſeems the more probable, as ſome animals naturally carnivorous, particularly dogs and cats, may be ſupported in their domeſtic ſtate by vegetable food alone. If we extend this to the whole canine and feline genera, we ſhall take in moſt of the beaſts of prey; as lions, tygers, leopards, panthers, wolves, foxes, hyenas, &c. Bears are well known ſometimes to feed on berries; ſnakes will eat bread and milk; and there is no reaſon to ſuppoſe that even the moſt carnivorous birds could not be kept alive by grain or other vegetable food. By thus excluding ſuch a number of uſeleſs animals, a very conſiderable ſpace will be allowed for the circulation of air in the ark, the want of which ſeems to be the moſt inexplicable difficulty, if we may judge from the preſent conſtitution of things. It ſeem indeed to be certain, that no equal number of animals could ſubſiſt for a twelvemonth in an equal ſpace ſo cloſely ſhut up as they were. The ark, it is true, contained near two millions of cubic feet; but conſidering the number of its inhabitants,

39
Of the ſub-
ſiſtence of
carnivorous
animals in
the ark.

Deluge. inhabitants, the great space necessary for the food with which they were to be supplied, and the continual pollution of the air by their dung and filth, as well as the effluvia from their bodies, there seems little probability that even such a vast bulk of air could suffice for any length of time. This difficulty will appear the greater, when we consider that any ventilation was impossible, as this could not have been done without both opening the door and window; and the former, we are certain, was not opened until the time that the command was given to come forth out of the ark. Neither is there the smallest probability, that the opening of a single window could renew the air in such a manner as to make it fit for breathing throughout the whole extent of the ark. In this particular, therefore, we must have recourse to the immediate interposition of Divine power, and suppose that the air was miraculously preserved of a sufficient degree of purity, as the garments of the Israelites were preserved from turning old, and their feet from being affected by the journey through the desert in which they wandered so long.—Many other questions concerning the economy of the ark might be proposed; as, how they supplied themselves with water; in what manner they could use fire for the dressing of their victuals, &c. But as every answer to these must be founded wholly upon conjecture, and none can pretend that there was a natural impossibility of effecting any of these things, we forbear to insist farther upon them. The case, however, is very different with respect to the air necessary for sustaining animal life; for here there is a plain impossibility in a natural way; nay, we may even doubt whether the general mass of atmosphere, after being deprived of its electric matter, or otherwise altered in such a manner as to let fall such a quantity of the water it contained, was fit for the support of animal life; so that a miracle would have been necessary at any rate. To this indeed it may be replied, that on such a supposition, men and other animals would have been destroyed, not by the flood, but by the vitiated air they breathed. But, as has been already hinted, it is improbable that any living creature could resist the violent rain which took place, and which would soon drive the birds from their shelter, as the waters beginning to overflow the ground would soon expel the human race from their houses; and it would not be till the end of the 40 days and 40 nights that the air could be at its worst state, long before which time all animal life would be extinct.

We shall conclude this article with considering some of the alterations which are supposed to have taken place in the world in consequence of the deluge. One of these is the much greater quantity of water on the present than on the old world. Dr Keill has indeed endeavoured to prove, that the present extent of the surface of the waters is necessary to raise such a quantity of vapours as may supply the surface of the earth with rain and with springs. In answer to this, it is said, that it may be justly questioned whether all springs are derived from the vapours raised by the sun's heat? and, 2. Whether the primitive earth stood in need of such a quantity of rain to render it as fertile as the present? Dr Woodward gives the following reason for supposing the antediluvian seas to have been nearly of

the same extent with those at present, viz. that "the spoils of the sea, the shells and other marine bodies, are left in such prodigious numbers, and in heaps upon heaps in the earth, besides those which have long since perished, that they could not have been left in such quantities, had not the seas occupied much the same space as they do now." This argument, however, is thought by Mr Cockburn to be also inconclusive: "For (says he), 1. Animal food, whether fish or flesh, was not used by mankind before the deluge: but, 2. Suppose it had, yet for the first 500 years the number of mankind was but small, and likely at a great distance from the sea; so that the increase of all kinds of fish during so long a time must have been prodigious. We need not be surprised, then, at the immense quantities of the exuviae of marine animals left on the earth by the deluge. But the reason he brings to prove that the several continents of the world were encompassed with seas as they are now, viz. that as there are different sorts of fishes in the different seas of the world, so the exuviae of the same kind are generally found upon contiguous lands, does not always hold, since there are some shells found in the continent which are strangers to the parts of the sea conterminous to these continents. That the seas in the present earth are vastly more extended, and consequently the dry land so much less in proportion, may likewise be inferred from the great multitude of islands that lie near the shores of the greater continents, if it be true what some allege, that they are parts broken off by the deluge from the main land, which before that reached to and beyond them. And though islands are thought to be rarely found in the great ocean, yet there have of late been found in the midst of the Indian ocean vast clusters of islands, &c.

To all this it may be replied, That the Mosaic account says nothing of the extent of the seas either before or after the flood; but simply tells us, that the waters were poured out upon the surface of the earth from the windows of heaven and the fountains of the deep, and that as the flood decreased, the waters returned from off the face of the earth. If part of them returned, we have not the least reason to suppose that the whole did not do so likewise. That the fish, as well as land animals, were more numerous in the antediluvian world than now when such quantities are destroyed by mankind, is very probable, as we see they abound to this day in uninhabited places. This may account for the astonishing quantities of their exuviae to be met with in many different parts of the earth; but from the formation of islands nothing can be concluded concerning the antediluvian world. Late discoveries have shown that many islands have a volcanic origin; others are formed by the growth of coral; some by an accumulation of sea-weeds and other matters floating on the surface of the ocean, and detained upon sand banks or sunk rocks: while not a few of those near the great continents owe their origin to the quantities of mud brought down by the great rivers which empty themselves into the ocean. Authentic history scarcely affords an instance of an island formed by the breaking off a piece from the continent, though it does many of islands being joined to continents by some one or other of the causes just mentioned.

The inferior fertility of the earth after the deluge is

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Changes
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Deluge. much insisted upon by the same author, for the following reasons: "1. The grant of animal food to Noah and his posterity; which he thinks is an indication of greater barrenness in the ground than formerly. 2. Our Saviour compares the days of Noah with those of Lot; and as the country about Sodom is said to have been exceedingly fertile like *the garden of the Lord*, he is of opinion that the antediluvian world must have been very fertile also. 3. As (according to Dr Woodward) the first earth brought forth all manner of plants of itself, without any labour or culture of man, and even before there was a man to till the ground, we may reasonably suppose that the exterior stratum or surface of the earth consisted of such terrestrial matter as was fit for these productions; that is, of a rich light mould, affording plentifully matter for vegetation. Now, though God was pleased, upon man's transgression, to withdraw in part his benediction from the earth; yet the earth itself was untouched till the deluge, the same surface of rich mould was still upon it, and brought forth plentifully, especially when man's culture for corn was added. But the inundation of waters at the deluge greatly altered the constitution of the earth itself; it mixed and confounded this upper stratum of vegetative earth with other terrestrial matter not fit for vegetation, with sand, gravel, stones, and all kinds of mineral matter, which must needs render the earth in general much less fertile than before, and which made the plough necessary to dig up the proper vegetative mould, and bring it to the surface, and also manure or compost to increase and enrich it; neither of which before the flood it needed. 4. There is a moral reason why the earth after the flood should be less fertile than before. The luxuriant productions of the first earth, after man's nature became corrupted, and to deviate more and more from righteousness, served only to excite and foment his lusts, and to minister plentiful fuel to his vices and luxury. To cut off, therefore, such occasion of sin and wickedness, God, in great mercy to men, retrenched the earth in its former fertility, thereby obliging them to labour and diligence, and employing most of their time to procure their necessary subsistence, which the earth by diligent culture will still afford, but not that luxuriant abundance it did before the flood. If we take a survey of the different regions and countries of the world, we shall find this to be the truth of the case. Some places, both in Asia and America, are as it were a paradise in respect of the rest, to show us perhaps what was and would have been the state of the earth had not man sinned; but far the greatest part is nothing to be compared to these, and evidently shows that effect which the sins of men had upon the earth itself. In a word, if we take a survey of the whole, it cannot be thought that the first blessing was restored to the earth after the flood, or that it came out of the hands of its Maker in the state it is at present, since so great a part of it bears still the marks of the curse laid upon it."

Notwithstanding all that is here alleged, the extraordinary fertility of the ancient earth must still appear very problematical, if we consider all circumstances. For,

1. Even at the creation, when the earth was at its utmost perfection, we cannot suppose that every part

of it produced spontaneously like the garden of Eden. *Deluge.* On the contrary, we are told that this garden was *planted by the Lord God*, and that Adam was put into it to *dress it* and to *keep it*. It appears, therefore, that even in the Paradisaical state the earth would not have produced food for man without culture; for as God *planted* the first garden, there can be no doubt that had man continued in his state of innocence and multiplied, he must have *planted* other gardens when it became necessary. After the fall, the fertility of the earth was expressly removed, and that not in a slight degree; but if we can judge from the present state of things, it must have become extremely wild and barren. Thus, when it is said, "Thorns also and thistles shall it bring forth to thee;" we may judge of the state of the soil from that which we see bringing forth thorns and thistles at this day. Every one knows that an abundant crop of these weeds indicates poor ground, which will require a great deal of cultivation to bring it into order. Nay, that we may be sure that the cultivation of the earth was at this time no easy matter, it is likewise said, "In sorrow shalt thou eat of it all the days of thy life." Hence it would appear, that the antediluvian earth, instead of being more fertile, was much more barren than at present. That the labour of cultivating the ground at that time was also so great as to be almost intolerable, is evident from the speech of Lamech on the birth of Noah: "This same (says he) shall comfort us concerning our work and toil of our hands, concerning the ground which the Lord hath cursed."

2. There is a very evident natural reason why the antediluvian world should have been more barren than the present, and why the deluge should have removed that barrenness. Under the article ANTEDILUVIANS, N^o 19. it is hinted, that the purity of the air at that time was a principal cause of the longevity of the human race. If this was really the case, which is very probable, we must suppose the atmosphere to have then contained a greater quantity of *pure air* than it does at present; for experiments have put it beyond doubt, that from this the support of animal life is immediately derived. But this kind of air, however favourable to animal life, is found to be very unfavourable to vegetation; and therefore in proportion to its abundance in the antediluvian atmosphere, the animals will be healthy, and the vegetables weak, puny, and sickly. But the deluge, by overflowing the earth for a whole year, destroyed every animal and vegetable, and consequently induced a vast putrefaction all over the globe; the consequence of which was the production of an immense quantity of what is called *phlogisticated air* (*azotic gas*). This mixing with the pure atmosphere, vitiated it into such a degree as to make it less friendly to animal life, but more so to vegetation. Hence the present world must naturally be more fertile than the former; and not only on this account, but by reason of its being manured by the stagnation of the waters upon its surface for a twelvemonth, and the immense quantity of animal matter left by them, the ground, instead of being lessened in its fertility, as Dr Woodward supposes, must have been restored, as far as we can judge, to the very state it was in at its original formation.

3. That this was really the case appears probable from what

Deluge. what the Deity said to Noah after offering up his sacrifice. "I will not (says he) curse the ground any more for man's sake." Now this was plainly intimating that the earth was restored to its primitive fertility, and that he would no more take it away; for when he did so to the primitive world, it was in these words, "Curfed is the ground for thy sake." That the curse here alluded to was really the depriving the earth of its fertility, and not the overflowing the earth with water, is evident; because, after declaring that he would no more curse the ground for man's sake, he adds, "Neither will I again smite every living thing as I have done."

4. The moral reasons assigned why the present world should be less fertile than the former, seem to be inconclusive. However barren we may reckon the earth just now, it is certain that it produces, or might produce, much more than would suffice for all its inhabitants. The difficulties which mankind undergo are not at all owing to the barrenness of the earth, but to their own conduct, or their oppression of one another. Neither does it clearly appear that animal food is really in any degree cheaper than vegetable, but rather the contrary: so that whatever was the reason of this grant after the flood, we cannot fairly ascribe it to a foresight of the future barrenness of the earth.

Another question which naturally occurs on the subject of the deluge is, Whether there was any rain before it or not? The argument against the existence of rain before the flood, is obviously derived from the rainbow being made a symbol of the divine favour immediately after. It is certain, indeed, that unless we suppose the nature of light or of water to have been different before this event from what it was afterwards, there is a natural impossibility of the refraction of the sun's light being prevented from showing the appearance of a rainbow, whenever the sun and clouds were in a certain position with regard to one another. It appears improbable to those who take this side of the question, that the Deity should institute any thing as an emblem of his displeasure being turned away, when the same emblem had been seen perhaps a very short time before the catastrophe happened. On the other hand, it is replied, that there is no absurdity in supposing this to have been the case; for though the rainbow existed before the deluge, yet it never was appointed to be the symbol of this particular event, viz. the reconciliation of the Deity; and the impossibility of vegetables being supplied with a sufficient quantity of moisture without rain, is likewise urged as a decisive argument. Still, however, it appears, that even vegetation may subsist, and that in its utmost perfection, without rain; for we are informed, that by means of a mist the ground was originally watered, and vegetables supplied with moisture, before there was any rain; and if this was the case at one time, it might have been at any other, or at any number of times we can suppose. Indeed, as matters stand at present, this would undoubtedly be a very scanty supply; and perhaps so it was in the antediluvian world; and thus the want of rain might have been one cause of that barrenness in the antediluvian world which we have already mentioned as probable, and which Mr

Bryant mentions as the opinion of all the ancient mythologists.

DEMADES, a famous Athenian, who from being a mariner, became a great orator, and appeased Philip by his eloquence, after the famous victory over the Athenians at Cheronea, in the 338th year B. C.

DEMAIN, or DEMESNE, in *Law*, is commonly understood to be the lord's chief manor place, with the lands thereto belonging, which he and his ancestors have, time out of mind, kept in their own manual occupation.

DEMAND, in its popular sense, denotes a calling for or requiring one's due.

DEMAND, in *Law*, has a more special signification, as contradicting from *plaint*; for all civil actions are pursued either by demands or plaints; according to which the pursuer is called either *demandant* or *plaintiff*; viz. in real actions, *demandant*; and in personal actions, *plaintiff*. See PLAINTIFF.

DEMESNE. See DEMAIN.

DEMESNE Lands. See REVENUE.

DEMETRIA, a festival in honour of Ceres, called by the Greeks *Demeter*. It was then customary for the votaries of the goddess to lash themselves with whips made with the bark of trees. The Athenians had a solemnity of the same name in honour of Demetrius Poliorcetes.

DEMETRIUS, a son of Antigonus and Stratonice, surnamed *Poliorcetes*, "Destroyer of towns." At the age of 22, he was sent by his father against Ptolemy, who invaded Syria. He was defeated near Gaza; but he soon repaired his loss by a victory over one of the generals of the enemy. He afterwards sailed with a fleet of 250 ships to Athens, and restored the Athenians to liberty, by freeing them from the power of Cassander and Ptolemy, and expelling the garrison, which was stationed there under Demetrius Phalereus. After this successful expedition, he besieged and took Munychia, and defeated Cassander at Thermopylæ. His reception at Athens after these victories was attended with the greatest fervility, and the Athenians were not ashamed to raise altars to him as a god, and consult his oracles. This uncommon success raised the jealousy of the successors of Alexander; and Seleucus Cassander and Lysimachus united to destroy Antigonus and his son. Their hostile armies met at Ipsus, 299 years before the Augustan age. Antigonus was killed in the battle; and Demetrius, after a severe loss, retired to Ephesus. His ill success raised him many enemies; and the Athenians, who had lately adored him as a god, refused to admit him into their city. He soon after ravaged the territory of Lysimachus, and reconciled himself to Seleucus, to whom he gave his daughter Stratonice in marriage. Athens now laboured under tyranny, and Demetrius relieved it and pardoned the inhabitants. The loss of his possessions, in Asia recalled him from Greece, and he established himself on the throne of Macedonia by the murder of Alexander the son of Cassander. Here he was continually at war with the neighbouring states, and the superior power of his adversaries obliged him to leave Macedonia, after he had sat on the throne for seven years. He passed into Asia, and attacked some of the provinces of Lysimachus, with various success; but fa-

Demades
||
Demetrius.

Demetrius. mine and pestilence destroyed the greatest part of his army, and he retired to the court of Seleucus for support and assistance. He met with a kind reception; but hostilities were soon begun; and after he had gained some advantages over his son-in-law, Demetrius was totally forsaken by his troops in the field of battle, and became an easy prey to the enemy. Though he was kept in confinement by his son-in-law, yet he maintained himself like a prince, and passed his time in hunting, and in every laborious exercise. His son Antigonus offered Seleucus all his possessions, and even his person, to procure his father's liberty; but all proved unavailing, and Demetrius died in the 54th year of his age, after a confinement of three years, 286 years before Christ. His remains were given to Antigonus, and honoured with a splendid funeral pomp at Corinth, and hence conveyed to Demetrias. His posterity remained in possession of the Macedonian throne till the age of Perseus who was conquered by the Romans. Demetrius has rendered himself famous for his fondness of dissipation when among the dissolute, and for his love of virtue and military glory in the field of battle. He has been commended as a great warrior; and his ingenious inventions, his warlike engines, and stupendous machines in the war with the Rhodians, justify his claims to that character. He has been blamed for his voluptuous indulgences; and his biographer observes that no Grecian prince had more wives and concubines than Poliorcetes. His obedience and reverence to his father has been justly admired; and it has been observed, that Antigonus ordered the ambassadors of a foreign prince particularly to remark the cordiality and friendship which subsisted between him and his son.

DEMETRIUS, surnamed *Donatus*, succeeded his father Antigonus on the throne of Macedonia. He reigned 12 years, and was succeeded by his son Philip.

DEMETRIUS, a son of Philip king of Macedonia, delivered as an hostage to the Romans. His modesty delivered his father from a heavy accusation laid before the Roman senate. When he returned to Macedonia, he was falsely accused by his brother Perseus, who was jealous of his popularity, and his father too credulously consented to his death.

DEMETRIUS I. surnamed *Soter* or *Saviour*, was son of Seleucus Philopator, the son of Antiochus the Great, king of Syria. His father gave him as a hostage to the Romans. After the death of Seleucus, Antiochus Epiphanes, the deceased monarch's brother, usurped the kingdom of Syria, and was succeeded by his son Antiochus Eupator. This usurpation displeased Demetrius, who was detained at Rome. He procured his liberty on pretence of going to hunt, and fled to Syria, where the troops received him as their lawful sovereign. He put to death Eupator and Lyfias, and established himself on his throne by cruelty and oppression. Alexander Bala, the son of Antiochus Epiphanes, laid claims upon the crown of Syria, and defeated Demetrius in a battle, 250 years before Christ.

DEMETRIUS II. surnamed *Nicator*, or *Conqueror*, was son of Soter, to whom he succeeded by the assistance of Ptolemy Philometor. He married Cleopatra, the daughter of Ptolemy, who was before the wife of the expelled monarch Alexander Bala. Demetrius gave

himself up to luxury and voluptuousness, and suffered his kingdom to be governed by his favourites. At that time a pretended son of Bala, called *Diodorus Tryphon*, seized a part of Syria; and Demetrius, to oppose his antagonist, made an alliance with the Jews, and marched into the east, where he was taken by the Parthians. Phraates, king of Parthia, gave him his daughter Rodogyne in marriage; and Cleopatra was so incensed at this new connection, that she gave herself up to Antiochus Sidetes her brother-in-law, and married him. Sidetes was killed in a battle against the Parthians, and Demetrius regained the possession of his kingdom. His pride and oppression rendered him odious; and his subjects asked a king of the house of Seleucus from Ptolemy Physcon king of Egypt; and Demetrius, unable to resist the power of his enemies, fled to Ptolemais, which was then in the hands of his wife Cleopatra. The gates were shut up against his approach by Cleopatra; and he was killed by order of the governor of Tyre, whither he had fled for protection, A. U. C. 627. He was succeeded by Alexander Zebina, whom Ptolemy had raised to the throne.

DEMETRIUS Phalereus, a celebrated orator and Peripatetic philosopher, was the scholar of Theophrastus. He acquired so much authority at Athens, that he governed the city for ten years; and ruled with so much wisdom and virtue, that they set up 36 statues in honour of him. By the slanders of some malicious persons in his absence, he was, however, condemned to die; and his image was pulled down; which, when Demetrius heard, he said, they could not pull down that virtue for which those images were set up. He escaped into Egypt, and was protected by Ptolemy Lagus. This king, it is said, asked his advice concerning the succession of his children to the throne; viz. whether he ought to prefer those he had by Euridice to Ptolemy Philadelphus, whom he had by Berenice? and Demetrius advised him to leave his crown to the former. This displeased Philadelphus so much, that his father being dead, he banished Demetrius; who was afterwards killed by the bite of an asp. Demetrius composed more works in prose and verse than any other Peripatetic of his time; and his writings consisted of poetry, history, politics, rhetoric, harangues, and embassies. None of them are extant except his rhetoric, which is usually printed among the *Rhetores Selecti*.

DEMETRIUS, a Cynic philosopher, disciple of Apollonius Tyanæus, in the age of Caligula. The emperor wished to gain the philosopher to his interest by a large present; but Demetrius refused it with indignation, and said, If Caligula wishes to bribe me, let him send me his crown. Vespasian was displeased with his insolence, and banished him to an island. The Cynic derided the punishment, and bitterly inveighed against the emperor. He died in a great old age; and Seneca observes that "nature had brought him forth to show mankind that an exalted genius can live securely, without being corrupted by the vices of the world."

DEMI (formed from *dimidium*), a word used in composition with other words to signify *bals*.

DEMI-Attici, boroughs or larger villages of Attica. The Athenian tribes were distinguished into Demi. Homer, in his catalogue, distinguishes the Athenians by the appellation *Demos*. And when Theseus prevailed

Demetrius
||
Demi-Attici.

Demi-culverin on them to quit the country and settle at Athens, they still continued to frequent the demi, and to perform their several religious ceremonies there.

DEMI-Culverin, a piece of ordnance usually $4\frac{1}{2}$ inches bore, 2700 pounds weight, 10 feet long, and carrying point blank 175 paces. A demi-culverin of the least size is $4\frac{1}{2}$ inches bore, 10 feet long, and 2000 pounds weight. It carries a ball of 4 inches diameter and of 9 pounds weight, and its level range is 174 paces. A demi-culverin of the largest fort is $4\frac{1}{2}$ inches bore, $13\frac{1}{2}$ feet long, and weighs 3000 pounds weight. It carries a ball $4\frac{1}{2}$ inches diameter, weighing 12 pounds 11 ounces, point blank 178 paces.

DEMI-God. See **HERO**.

DEMI-Gorge, in *Fortification*, is that part of the polygon which remains after the flank is raised, and goes from the curtain to the angle of the polygon. It is half of the vacant space or entrance into a bastion.

DEMI-Quaver, a note in *Music*, two of which are equal to a quaver.

DEMI-Semi-Quaver, in *Music*, the shortest note, two of them being equal to a semi-quaver.

DEMISE, in *Law*, is applied to an estate either in fee-simple, fee-tail, or for a term of life or years; and so it is commonly taken in many writs. The king's death is in law termed the demise of the king.

DEMISE and *Redemise*, denote a conveyance where there are mutual leases made from one to another of the same land, or something out of it.

DEMIURGE (from *δημιος*, which denotes a "public servant," and *εργον* "work"), in the mythology of the eastern philosophers, was one of the **ÆONS** employed by the supreme Deity in the creation of the world. The character they gave him is a compound of shining qualities and insupportable arrogance; and his excessive lust of empire effaces his talents and virtues. He is represented as claiming dominion over the new world he has formed, as his sovereign right; and excluding totally the supreme Deity from all concernment in it, he demands from mankind, for himself and his associates, divine honours.

DEMOCRACY, from *δημος* "people," and *κρατειν* "to command" or "govern;" the same with a popular government, wherein the supreme power is lodged in the hands of the people; such were Rome and Athens of old; but as to our modern republics, Basil only excepted, their government comes nearer to aristocracy than democracy. See *LAW Index*.

DEMOCRITUS, one of the greatest philosophers of antiquity, was born at Abdera, a town of Thrace, about the 80th Olympiad; that is, about 460 years before Christ. His father, says Valerius Maximus, was able to entertain the army of Xerxes; and Diogenes Laertius adds, upon the testimony of Herodotus, that the king, in requital, presented him with some Magi and Chaldeans. From these Magi and Chaldeans Democritus received the first part of his education; and from them, whilst yet a boy, he learned theology and astronomy. He next applied to Leucippus, and learned from him the system of atoms and a vacuum. His father dying, the three sons, for so many there were, divided the estate. Democritus made choice of that part which consisted in money, as being, though the least share, the most convenient for travelling; and it is said, that his portion amounted to above 100 talents,

which is near 20,000l. sterling. His extraordinary inclination for the sciences and for knowledge, induced him to travel into all parts of the world where he hoped to find learned men. He went to visit the priests of Egypt, from whom he learned geometry; he consulted the Chaldeans and the Persian philosophers; and it is said that he penetrated even into India and Ethiopia, to confer with the Gymnosophists. In these travels he wasted his substance; after which, at his return, he was obliged to be maintained by his brother; and if he had not given proofs of the greatest understanding, and thereby procured to himself the highest honours, and the strongest interest of his country, he would have incurred the penalty of that law which denied interment in the family-sepulchre to those who had spent their patrimony. After his return from travelling, he lived at Abdera, and governed there in a most absolute manner, by virtue of his consummate wisdom. The magistrates of that city made him a present of 500 talents, and erected statues to him even in his lifetime; but being naturally more inclined to contemplation than delighted with public honours and employments, he withdrew into solitude and retirement. Democritus incessantly laughed at human life, as a continued farce, which made the inhabitants of Abdera think he was mad; on which they sent Hippocrates to cure him: but that celebrated physician having discoursed with the philosopher, told the Abderians, that he had a great veneration for Democritus; and that, in his opinion, those who esteemed themselves the most healthy were the most distempered. Democritus died, according to Diogenes Laertius, in the 361st year before the Christian era, aged 109. It is said that he put out his eyes, in order that he might meditate more profoundly on philosophical subjects; but this has little probability. He was the author of many books, which are lost; and from these Epicurus borrowed his philosophy.

DEMOIVRE, **ABRAHAM**, an eminent mathematician, was born at Vitri in Champagne, May 1667. The revocation of the edict of Nantz, in 1685, determined him to fly into England, rather than abandon the religion of his fathers. He laid the foundation of his mathematical studies in France, and perfected himself at London; where a mediocrity of fortune obliged him to employ his talents in this way, and to read public lectures for his better support. The *Principia Mathematica* of Newton, which chance is said to have thrown in his way, made him comprehend at once, how little he had advanced in the science he professed. He fell hard to work: he succeeded as he went along; and he soon became connected with, and celebrated among, the first-rate mathematicians. His eminence and abilities soon opened to him an entrance into the Royal Society of London, and afterwards into the Academy of Sciences at Paris. His merit was so known and acknowledged by the former, that they judged him a fit person to decide the famous contest between Newton and Leibnitz. The collection of the academy of Paris contains no memoir of this author, who died at London Nov. 1754, soon after his admission into it; but the Philosophical Transactions of London have several, and all of them interesting. He published also some capital works, such as, *Miscellanea Analytica, de seriebus et quadraturis*, &c. 1730, 4to. But perhaps he has been more generally known by his "Doctrina

Demo-
critus,
Demoivre.

Demon-
strable
||
Demo-
sthenes.

“ of Chances; or, Method of calculating the Probabilities of Events at Play.” This work was first printed 1618, in 4to, and dedicated to Sir Isaac Newton: it was reprinted, 1738, with great alterations and improvements; and a third edition was afterwards published with additions, and “ A Treatise on Annuities,” dedicated to Lord Carpenter.

DEMONSTRABLE, a term used in the schools to signify that a thing may be clearly proved. Thus, it is demonstrable, that the three angles of a triangle are equal to two right ones.

DEMONSTRATION, in *Logic*, a series of syllogisms, all whose premises are either definitions, self-evident truths, or propositions already established. See *Logic*.

DEMONSTRATIVE, in *Grammar*, a term given to such pronouns as serve to indicate or point out a thing. Of this number are *hic, hæc, hoc*, among the Latins; and *this, that, these, those*, in English.

DEMOSTHENES, the famous Athenian orator, was born at Athens 381 B. C. He lost his father at seven years of age; and was placed under the conduct of guardians, who robbed him of his substance, and neglected his education. Demosthenes repaired this loss by his love of eloquence and his extraordinary abilities. He became the disciple of Isæus and Plato, and applied himself to study the orations of Isocrates. At the age of 17 he gave an early proof of his eloquence and abilities against his guardians, from whom he obtained the retribution of the greatest part of his estate. His rising talents were, however, impeded by various natural defects. But these were at last conquered by dint of resolution and unwearied attention. He declaimed by the sea-shore, that he might be used to the noise of a tumultuous assembly; and with pebbles in his mouth, that he might correct a defect in his speech. He practised at home with a naked sword hanging over his shoulder, that he might check an ungraceful motion to which he was subject. He also confined himself in a subterraneous cave, to devote himself more closely to studious pursuits; and to eradicate all curiosity of appearing in public, he shaved one half of his head. In this solitary retirement, by the help of a glimmering lamp, he composed the greatest part of his orations, which have ever been the admiration of every age; though his contemporaries and rivals inveighed against them, and observed, that they smelt of oil. His abilities as an orator raised him to consequence at Athens, and he was soon placed at the head of government. In this public capacity he roused his countrymen from their indolence, and animated them against the encroachment of Philip of Macedonia. In the battle of Cheronæa, Demosthenes betrayed his pusillanimity, and saved his life by flight. After the death of Philip, he declared himself warmly against his son and successor Alexander; and when the Macedonians demanded of the Athenians their orators, Demosthenes reminded his countrymen of the fable of the sheep, which delivered their dogs to the wolves. By the prevalence of party, however, he was forced to retire from Athens; and in his banishment, which he passed at Trœzen and Ægina, he lived with more effeminacy than true heroism. When Antipater made war against Greece after the death of Alexander, Demosthenes was publicly recalled from his exile, and a galley

was sent to fetch him from Ægina. His return was attended with much splendor, and all the citizens crowded at the Piræus to see him land. His triumph and popularity were short. Antipater and Craterus were near Athens, and demanded all the orators to be delivered up into their hands. Demosthenes fled to the temple of Neptune in Calauria; and when he saw that all hopes of safety were vanished, he took a dose of poison, which he always carried in a quill, and expired on the day that the Thesmophoria were celebrated, 322 years before Christ. The Athenians raised a brazen statue to his honour, with an inscription translated into this distich:

*Si tibi par menti robur, Vir magne, fuisset,
Græcia non Macedo succubisset hero.*

Demosthenes has been deservedly called *the prince of orators*. Indeed no orator had ever a finer field than Demosthenes in his Olynthiacs and Philippics, which are his capital orations; and undoubtedly to the greatness of the subject, and to that integrity and public spirit which breathe in them, they owe a large portion of their merit. The subject is, to excite the indignation of his countrymen against Philip of Macedon, the public enemy of the liberties of Greece; and to guard them against the treacherous measures by which that crafty tyrant endeavoured to lull them into a neglect of their danger. To attain this end, we see him use every proper means to animate a people distinguished by justice, humanity, and valour, but in many instances become corrupt and degenerate. He boldly accuses them of venality, indolence, and indifference to the public good; while, at the same time, he reminds them of their former glory, and of their present resources. His contemporary orators, who were bribed by Philip, and who persuaded the people to peace, he openly reproaches as traitors to their country. He not only prompts to vigorous measures, but teaches how they are to be carried into execution. His orations are strongly animated, and full of the impetuosity and ardour of public spirit. His composition is not distinguished by ornament and splendour. It is an energy of thought, peculiarly his own, which forms his character, and raises him above his species. He seems not to attend to words, but to things. We forget the orator, and think of the subject. He has no parade and ostentation, no studied introductions: but is like a man full of his subject; who after preparing his audience by a sentence or two for the reception of plain truths, enters directly on business.

The style of Demosthenes is strong and concise; though sometimes, it must be confessed, harsh and abrupt. His words are highly expressive, and his arrangement firm and manly. Negligent of lesser graces, he seems to have aimed at that sublime which lies in sentiment. His action and pronunciation are said to have been uncommonly vehement and ardent; which, from the manner of his writings, we should readily believe. His character appears to have been of the austere rather than of a gentle kind. He is always grave, serious, passionate; never degrading himself, nor attempting any thing like pleasantry. If his admirable eloquence be in any respect faulty, it is that he sometimes borders on the hard and dry. He may

Demo-
sthenes.

Demo-
sthenes,
Dempster.

may be thought to want smoothness and grace; which is attributed to his imitating too closely the manner of Thucydides, who was his great model for style, and whose history he is said to have transcribed eight times with his own hand. But these defects are more than atoned for by that masterly force of masculine eloquence, which, as it overpowered all who heard it, cannot in the present day be read without emotion.

Cicero calls him a perfect model, and such as he himself wished to be. These two great princes of eloquence have been often compared together; but the judgment hesitates to which to give the preference. The archbishop of Cambray, however, seems to have stated their merits with great justice and perspicuity in his Reflections on Rhetoric and Poetry. The passage, translated, is as follows: "I do not hesitate to declare that I think Demosthenes superior to Cicero. I am persuaded no one can admire Cicero more than I do. He adorns whatever he attempts. He does honour to language. He disposes of words in a manner peculiar to himself. His style has great variety of character. Whenever he pleases, he is even concise and vehement; for instance, against Catiline, against Verres, against Antony. But ornament is too visible in his writings. His art is wonderful, but it is perceived. When the orator is providing for the safety of the republic, he forgets not himself, nor permits others to forget him. Demosthenes seems to escape from himself, and to see nothing but his country. He seeks not elegance of expression; unsought for, he possesses it. He is superior to admiration. He makes use of language, as a modest man does of dress, only to cover him. He thunders, he lightens. He is a torrent which carries every thing before it. We cannot criticise, because we are not ourselves. His subject enchains our attention, and makes us forget his language. We lose him from our sight: Philip alone occupies our minds. I am delighted with both these orators; but I confess that I am less affected by the infinite art and magnificent eloquence of Cicero, than by the rapid simplicity of Demosthenes."

DEMPSTER, THOMAS, a very learned man, but of a singular character. He was born in Scotland, but we do not find in what year. He went over to France for the sake of embracing the Catholic religion, and taught classical learning at Paris about the beginning of the 17th century. Though his business was to teach school, yet he was as ready to draw his sword, and as quarrellous as if he had been a duellist by profession: and it is said, that there scarce passed a day but he had something or other of this kind upon his hands. This spirit and turn of temper drew him into many scrapes; and one in particular, which obliged him to quit the country. Grangier, principal of the college of Beauvais at Paris, being obliged to take a journey, appointed Dempster his substitute. Dempster caused whip a scholar, in full school, for challenging one of his fellows to fight a duel. The scholar, to revenge this affront, brought three gentlemen of his relations, who were of the king's life-guards, into the college. Dempster made the whole college take arms; hamstringed the three life-guard-men's horses before the college gate; and put himself into such a posture of defence, that

the three sparks were forced to ask for quarter. He gave them their lives; but imprisoned them, and did not release them for some days. They sought another way to revenge themselves: they caused an information to be made of the life and moral behaviour of Dempster, and got some witnesses to be heard against him. Upon this he went over to England, where he found refuge; but did not make any long stay. He went abroad again, and read lectures upon polite learning in several universities; in that of Nismes particularly, where he disputed for a professor's chair, and obtained it. He went to Bologna, and was professor there for the remainder of his life; and was there also admitted a member of the Academy Della Rotte. He died there in September 1625, leaving behind him several learned works; as Commentaries on *Rosinus de Antiquitatibus Romanorum*, and upon Claudian, &c.; four books of Epistles; several dramatic pieces, and other poems; some books of law; an Apparatus to the History of Scotland; a Martyrology of Scotland; and a List of the Scottish Writers.

DEMPSTER of Court, the name formerly given in Scotland to the common executioner or hangman.

DEMSTER, or DEEMSTER. See DEEMSTER.

DEMULCENTS, among physicians, medicines good against acrimonious humours. Such are the roots of marsh-mallows, of white lilies, of liquorice, and of viper-grass, the five emollient herbs, &c.

DEMURRAGE, in *Commerce*, an allowance made to the master of a ship by the merchants, for staying in a port longer than the time first appointed for his departure.

DEMURRER, in *Law*, a stop put to any action upon some point of difficulty which must be determined by the court, before any further proceedings can be had in the suit.

DEN, a syllable which, added to the names of places, shows them to be situated in valleys or near woods; as Tenterden.

DENARIUS, in Roman antiquity, the chief silver coin among the Romans, worth in our money about sevenpence three farthings. As a weight, it was the seventh part of a Roman ounce.

DENARIUS is also used in our law-books for an English penny.

DENBIGHSHIRE, a county of Wales, bounded on the south by Merioneth and Montgomery shires, on the north by Flintshire and the Irish sea, on the west by Caernarvon and part of Merionethshire. It is about 40 miles long and 21 broad. The air is wholesome, but sharp, the county being pretty hilly, and the snow lying long on the tops of the mountains. The soil in general is barren: but the vale of Clwyd, so called from its being watered by that river, is a very fertile pleasant spot of great extent, and well inhabited. The chief commodities are black cattle, sheep, and goats, rye, called here *amelcorn*, and lead-ore. The county sends two members to parliament, viz. a knight for the shire, and a burgess for Denbigh the capital.

DENBIGH, the capital town of Denbighshire in North Wales. It is seated on the side of a rocky hill, on a branch of the river Clwyd, and was formerly a place of great strength, with an impregnable castle, now demolished. It is pretty large, well built, and inhabited

by

Dempster
of court
||
Denbigh.

Dendera
||
Dendro-
meter.

by tanners and glovers, and gives the title of earl to the noble family of Fielding. W. Long. 3. 30. N. Lat. 53. 15.

DENDERA, a town of Egypt, on the west side of the Nile. Near it are very magnificent ruins, supposed to be those of an ancient temple of Serapis. It is 48 miles south south-east of Girge, and 242 south of Cairo. E. Long. 31. 40. N. Lat. 26. 10.

DENDERMOND, a handsome and strong town of the Austrian Netherlands, in Flanders, with a strong citadel. It was taken by the allies in 1706, and by the French in 1745. It is surrounded by marshes and fine meadows, which the inhabitants can lay under water when they please. It is seated at the confluence of the Dender aud Scheldt. E. Long. 4. 3. N. Lat. 51. 3.

DENDRACHATES, in *Natural History*, the name used by the ancients for an extremely elegant and beautiful species of agate, the ground of which is whitish, variegated with veins of a brighter white. These veins are beautifully disposed in a number of various figures; but generally in many concentric irregular circles, drawn round one or more points. It is common also, in various parts of this stone, to find very beautiful delineations of trees, mosses, sea-plants, and the like, so elegantly expressed, that many have erroneously taken them for real plants included in the substance of the stone: whence the name *dendrachates*.

DENDROMETER (from *dendron* a tree, and *metron* I measure), an instrument invented by Messrs Duncome and Whittel, for which they obtained a patent; and so called from its use in measuring trees. This instrument consists of a semicircle A (fig. 1.), divided into two quadrants, and graduated from the middle; upon the diameter B there hangs a plummet L for fixing the instrument in a vertical position; there is also a chord D parallel to the diameter, and a radius E, passing at right angles through the diameter and chord. From a point on the radius hangs an altimeter C, between the chord and diameter, to which is fixed a small semicircle G, and a screw, to confine it in any position. The altimeter, which is contrived to form the same angle with the radius of the instrument as the tree forms with the horizon, is divided from its centre both ways into forty equal parts: and these parts are again subdivided into halves and quarters. Upon the small semicircle G, on which is accounted the quantity of the angle made by the altimeter and radius, are expressed degrees from 60 to 120, being 30 on each quadrant. The radius is numbered with the same scale of divisions as the altimeter. There is also a nonius to the small semicircle, which shows the quantity of an angle to every five minutes. On the back of the instrument the stock M of the sliding piece is confined to the axis N, which moves concentrically parallel to the elevation index F on the opposite side, to which it is fixed. This index is numbered by a scale of equal divisions with the altimeter and radius: at the end of the index is a nonius, by which the angles of elevation above, or of depression below, the horizon, measured upon the semicircle of the instrument, are determined to every five minutes. There is also a groove in the radius, that slides across the axis by means of a screw I, working between the chord and semicircle of the instrument; and this screw is turned by the key O.

Plate
CLXVIII.

Upon the stock M (fig. 2.) is a sliding piece P, that always acts at right angles with the altimeter, by means of a groove in the latter. To the shank of the sliding piece is affixed a moveable limb Q, which forms the same angle with the altimeter as the bough forms with the body or trunk of the tree. This limb may be of any convenient length, divided into equal parts of the same scale with all the foregoing divisions. At the extremity of the fixed axis, on a centre, an index R, with telescopic sights, works horizontally upon the moveable limb of the sliding piece. Upon this horizontal index R may be fixed a small quadrant T, described with any convenient radius from the centre on which the index moves, and divided into 90 degrees, beginning at a right line drawn from the centre at right angles with the fiducial edge of the said index; and upon the extremity of the axis is a nonius, whereby to determine the quantity of an angle upon the quadrant every five minutes. There are also two small circular arches S, S, serving to keep the sights in a parallel position, each containing an equal number of degrees. Upon these arches is measured the angle, subtending a side equal to the difference of the altitudes of the observed objects above the plane of the horizon, and whose base is the nearest distance between the perpendiculars in which these objects are situated. The dendrometer is fitted to a theodolite, and may be used either with or without it as occasion requires.

Dendro-
meter.

The principal use of this instrument is for measuring the length and diameter of any tree, perpendicular or oblique, to an horizontal plane, or in any situation of the plane on which it rests, or of any figure, whether regular or irregular, and also the length and diameter of the boughs, by mere inspection; and the inventors of it have calculated tables, annexed to their account of the instrument itself, by the help of which the quantity of timber in a tree is obtained without calculation, or the use of the sliding rule. The instrument is rectified by setting it in a perpendicular position, by means of the plummet, and screwing it to the staff; then the altimeter is placed in the exact position of the tree, whether perpendicular, reclining, or inclining, and screwed fast. If the tree stands on level ground, the horizontal distance from the tree to the axis of the instrument is measured with a tape-line, and the radius is moved with the key till that distance be cut upon it by the inside of the diameter: but if the ground be slanting, the distance from the tree to the instrument is measured, and the elevation index is moved till the point of the tree from which the distance was measured is seen through the sights, and there screwed fast; and the radius is moved backwards or forwards with the key, till this distance is cut upon the elevation index by the perpendicular line of the altimeter; and the horizontal line will be marked upon the radius by the inside of the diameter. In order to obtain the length of the tree, the elevation index is first moved downwards, till the bottom of the tree cut by the horizontal wires is observed through the sights, and the feet and inches marked by the index upon the altimeter below the point of sight or horizontal line are noted down: then the index is moved upwards till the part to which you would measure, cut by the horizontal wires, is seen, and the feet and inches marked on the altimeter above the point of sight are noted:

drome-
ter. noted: these two quantities added together give the exact length of the tree, which is inserted in a field-book. For the girth of the tree, the circumference in that part where the horizontal distance was taken, is measured with the tape-line; and a sixth part of this circumference is added to the distance on the radius, which was before cut by the inside of the diameter, because the tape-line, in taking the distance, cannot be applied to the centre of the body of the tree; then the elevation index is lowered to that part of the tree, of which the diameter is to be taken, and screwed fast. Set the moveable limb of the sliding piece quite straight, and the edge of the horizontal index upon the first division of it. Turn the whole instrument about to the left hand till you see through the sights the left side of the tree cut exactly by the perpendicular wires; then the instrument being fixed, move the sights only upon the sliding piece, till you see the right side of the tree cut also by the perpendicular wires; and you will find the true diameter marked by the horizontal index upon the sliding piece, which is to be entered in a distinct column of the field-book.

For the boughs: let the distance on the radius be now reduced to its former quantity, and the elevation index moved upwards till the bough is seen through the sights and screwed fast. Set the moveable part of the sliding piece in a position parallel to the bough, and the edge of the horizontal index on the first division of it. Turn the whole instrument about till you see through the sights the shoot of the bough close to the trunk cut by the perpendicular wires; then move the sights till you see the other end of the bough cut by the said wires, and note the feet and inches marked by the horizontal index on the moveable limb of the sliding piece, which will give the true length of the bough to be inserted in the field-book. And the girth of the bough may be obtained by directing the sights to that part of it whose girth is desired; then by moving the elevation index downwards till you see the under side of the bough cut by the horizontal wires, and there noting the feet and inches marked by the said index on the altimeter; after which, let the elevation index be moved upwards, till the upper side of the bough cut by the horizontal wires is seen; the feet and inches marked upon the altimeter are to be noted as before. The former quantity subtracted from the latter will give the true diameter of the bough, which is entered in the field-book. The true solidity both of the body of the tree and of the boughs may be found from the diameter and lengths in tables calculated for this purpose.

The dendrometer, fitted to a theodolite, may be applied to measuring the heights and distances of objects, accessible or inaccessible, whether situated in planes parallel or oblique to the plane in which the instrument is placed. It may be also used for taking all angles, whether vertical, horizontal, or oblique, in any position of the planes in which they are formed; and thus for facilitating the practical operations of engineering, land-surveying, levelling, mining, &c. and for performing the various cases of plane trigonometry without calculation; of which the inventors have subjoined to their account of this instrument many examples.

VOL. VII. Part I.

DENDROMETER, an instrument for measuring distances by a single observation, which has been proposed by Mr Pitt of Pendeford, near Wolverhampton, and of which the following is the description in the words of the author.

De drome-
ter. "The idea of an instrument to measure distances by a single observation, has sometimes been discussed, both in conversation and upon paper; and, though the subject has generally been treated with neglect, and even with a kind of contempt, by sound mathematicians, upon an idea of its extravagance and eccentricity, or upon a supposition of its being founded upon false principles, yet I cannot but strongly recommend it to the attention of the ingenious mathematical instrument maker, as an article perhaps capable of being brought to a higher degree of perfection than has generally been supposed.

"The method of determining distances by two observations, from either end of a base line, is well known to every one in the least degree conversant with plain trigonometry: that of determining such distances by one observation has been less explained and understood; and to this I wish to call the attention of the ingenious, whose local circumstances of situation may enable them to investigate and improve the subject.

"To determine distances by one observation, two methods may be proposed, founded on different principles; the one, on the supposition of the observer being in the centre, and the object in the circumference, of a circle; the other, on the contrary supposition, of the observer being in the circumference, and the object in the centre.

"To determine the distance of any object on the first supposition, of the observer being in the centre, the bulk or dimensions of such object must be known, either by measure or estimation, and the angle formed by lines drawn to its extremities being taken, by an accurate instrument, the distance is easily calculated; and such calculations may be facilitated by tables, or theorems adapted to that purpose. For this method our present instruments, with a nonius, and the whole very accurately divided, are sufficient; the only improvement wanting seems to be, the application of a micrometer to such instruments, to enable the observer to read his angle with more minute accuracy, by ascertaining not only the degrees and parts of a degree, but also the minutes and parts of a minute.

"As, in this method, the bulk of inaccessible objects can only be estimated, the error in distance will be exactly in the proportion of the error in such estimation; little dependence can therefore be placed on distances thus ascertained. For the purposes of surveying, indeed, a staff of known length may be held by an assistant; and the angle from the eye of the observer to its two ends being measured by an accurate instrument, with a micrometer fitted to ascertain minutes and parts of a minute, distances may be thus determined with great accuracy; the application of a micrometer to the theodolite, if it could be depended upon, for thus determining the minute parts of a degree, in small angles, is very much a desideratum with the practical surveyor.

"This method of measuring distances, though plain and simple enough, I shall just beg leave to illustrate by an example; suppose A, fig. 3. (Plate CLXVIII.)

Dendrometer.

the place of the instrument; BC, the assistant's staff, with a perpendicular pin at D, to enable the assistant to hold it in its right position; now, if the angle BAC could, by the help of a micrometer, be ascertained to parts of a minute, the distance from A to B, or to C, may be, with little trouble, calculated as follows.

“ Suppose the length of the staff BC be 100 inches, or other parts; divide the number 343,500 by the minutes contained in the angle A, the quotient will be the distance AB, or AC, in the same parts.

“ The number 343,500 becomes the dividend in this case, because the arch of a circle subtending an angle of 3435 minutes, or $57^{\circ} 15'$, is equal in length to the radius, and the object staff BC is supposed divided into 100 equal parts.

“ Thus, suppose the angle A be 1° , or $60'$, then, $60)343500(=5725$ inches = distance AB.

“ Or, if the angle A be $60\frac{1}{100}$, then $60.1)343500(=5715.5$ inches.

“ Hence it appears, that an error of $\frac{1}{100}$ of a minute, in the angle A, would cause an error of 9 inches and a half in the distance AB, or about $\frac{1}{8000}$ part of the whole; the accuracy therefore, of thus taking distances, depends upon the accuracy wherewith angles can be ascertained; and the error in distance will bear the same proportion to the actual distance, as the error in taking the angle does to the actual angle.

“ But this method of ascertaining distances cannot be applied to inaccessible objects, and it is moreover subject to the inconvenience of an assistant being obliged to go to the object whose distance is required, (an inconvenience almost equal to the trouble of actual admeasurement,) therefore the perfection of the second method proposed (if attainable) is principally to be desired; namely, that of conceiving the observation made on the circumference of a circle, whose centre is in the object whose distance is to be ascertained; and none of our instruments now in use being adapted to this mode of observation, a new construction of a mathematical instrument is therefore proposed, the name intended for which is the *Dendrometer*.

“ This name is not now used for the first time: it was applied in the same way by a gentleman who had, as I have been informed, turned his thoughts to this particular subject; but I do not find that he ever brought his instrument into use, or explained its principles; nor do I understand that this principle has ever been applied, in practice, for the familiar purpose of ascertaining terrestrial distances in surveying, or otherwise; though the same principle has been so generally, and successfully, applied, in determining the distance of the heavenly bodies by means of their parallax.

“ The following principles of construction are proposed, which may perhaps be otherwise varied and improved. O, fig. 4. the object whose distance is required; ABCDE the instrument *in plano*; BC, a telescope, placed exactly parallel to the side AE; CE, an arch of a circle, whose centre is at A, accurately divided from E, in degrees, &c.; AD, an index, moveable on the centre A, with a nonius scale at the end D, graduated to apply to the divisions of the arch; also with a telescope, to enable the observer to discriminate the object, or any particular part or side thereof, the more accurately. The whole should be mounted on three legs, in the manner of a plain table, or theo-

dolite, and furnished with spirit-tubes to adjust it to an horizontal position. The instrument being placed in such position, the telescope BC must be brought upon the object O, or rather upon some particular point or side thereof; when, being there fastened, the index AD must be moved, till its telescope exactly strikes the same point of the object; then the divisions, on the arch ED, mark out the angle DAE; which will be exactly equal to the angle BOA, as is demonstrated in the 15th and 29th propositions of Euclid, Book I.; and the side BA being already known, the distance BO, or AO, may be easily determined in two different ways; viz. first, by supposing the triangle BOA an isosceles triangle; then multiply the side BA by 3435, as before, and divide the product by the minutes contained in the angle DAE = the angle BOA; the quotient will be the distance BO = AO, very nearly; or, secondly, by supposing the triangle ABO right-angled at B, then, as the sine of the angle found DAE = BOA is to the side known BA, so is the radius to the side AO, or so is the sine of the angle BAO to the side BO. To illustrate this by an example, suppose the side BA = 1 yard, the angle found DAE = BOA = $0^{\circ} 15'$, then, per first method, $15)3435(=229$ yards = the distance BO, or AO. Or, by second method,

As the sine of the angle found $0^{\circ} 15' = 7.6398160$
Is to the side BA = 1 yard = 0.0000000
So is radius $90^{\circ} 0' = 10.0000000$

To the log. of the side AO = 229 yards = 2.3601840

Or,

As to the sine of the angle found $0^{\circ} 15' = 7.6398160$
Is to the side BA = 1 yard = 0.0000000
So is the sine of the angle BAO = $89^{\circ} 45' = 9.9999959$

To the log. of the side BO = 229 yards = 2.3601799

“ As the perfection of this instrument depends totally upon its accuracy in taking small angles, which accuracy must depend, for its minute divisions, upon its being fitted with a micrometer; and as the writer of this cannot doubt that the particular mode of doing this must be familiar to the intelligent instrument-maker, he cannot but strongly recommend it to the attention of the ingenious of that profession, as an object which, when perfected, would be a real and considerable improvement in their art, and an useful instrument to the practical surveyor. Its accuracy would also, in some measure, depend upon the length of the line BA in the figure; that line might therefore be extended, by the instrument being constructed to fold or slide out to a greater length, when in use; upon which principle, connected with the application of a micrometer, an accurate and useful instrument might certainly be constructed. To adjust such instrument for use, let a staff be held up at a distance, in the manner of fig. 1. exactly equal in length to the distance of the two telescopes, and the index AD being brought exactly upon the side AE, if the two telescopes accurately strike either end of the staff, the instrument is properly adjusted.

“ The

Dendrometer
||
Deneb.

"The construction of a similar instrument, on the principles of Hadley's quadrant, for naval observations, would also doubtless be an acceptable object in navigation, by enabling the mariner to ascertain the distances of ships, capes, and other objects, at a single observation; and that, perhaps, with greater accuracy than can be done by any method now in use.

"For this purpose, the following construction is proposed: ABCDE, fig. 5. the instrument *in plano*; O, the object whose distance is required; at A, at C, at E, and at 3, are to be fixed speculums, properly framed and fitted, that at 3 having only its lower part quicksilvered, the upper part being left transparent, to view the object; the speculum at A being fixed obliquely, so that a line A 1, drawn perpendicular to its surface, may bisect the angle BAC in equal parts; that at C being perpendicular to the line C 2; those at E and 3 being perpendicular to the index E 3, and that at E being furnished with a sight; the arch DC to be divided from D, in the manner of Hadley's quadrant; the movement of the index to be measured, as before, by a micrometer; and, as the length of the line AE would tend to the perfection of the instrument, it may be constructed to fold in the middle, on the line C 2, into less compass, when not in use; the instrument may be adjusted for use by holding up a staff at a distance, as before proposed, whose length is exactly equal to the line AE.

"To make an observation by this instrument, it being previously properly adjusted, the eye is to be applied at the sight in the speculum E, and the face turned toward the object; when the object, being received on the speculum A, is reflected into that at C, and again into that at E, and that at 3 on the index; the index being then moved, till the reflected object, in the speculum at 3, exactly coincides with the real object, in the transparent part of the glass, the divisions on the arch D 3, subdivided by the micrometer, will determine the angle DE 3 = the angle AOE; from which the distance O may be determined as before.

"It is very probable that this arrangement may be improved, by those who are familiar with the best construction of Hadley's quadrant; which the writer of this professes himself not to be, farther than its general principle. He has not the least doubt that useful practical instruments may be constructed on the principles here described; and, upon this idea, cannot but recommend the subject to the attention of those concerned in the manufacture of similar instruments." *Repertory of Arts*, vol. i.

DENDROPHORIA, in antiquity, the carrying of boughs or branches of trees; a religious ceremony so called, because certain priests called from thence *dendrophori*, tree-bearers, marched in procession, carrying the branches of trees in their hands in honour of some god, as Bacchus, Cybele, Sylvanus, &c. The college of the dendrophori is often mentioned in ancient marbles; and we frequently see in basso relievos the bacchanals represented as men carrying little shrubs or branches of trees.

DENEb, an Arabic term signifying *tail*, used by astronomers to denote several fixed stars. Thus, *deneb elect*, signifies the bright star in the lion's tail. *Deneb adigege*, that in the swan's tail.

DENHAM, SIR JOHN, an eminent English poet, the only son of Sir John Denham, chief baron of the exchequer in Ireland, and one of the lords commissioners there, was born in Dublin in 1615; but his father, in 1617, being made a baron of the exchequer in England, he received his education in that country. In his youth he followed gaming more than any thing else; but, in 1641, published a tragedy called the *Sophy*, which was much admired by the best judges; and, in 1643, wrote his famous poem called *Cooper's Hill*, which Mr Dryden pronounces will ever be the standard of good writing for majesty of style. Denham was sent ambassador from Charles II. to the king of Poland; and at the Restoration was made surveyor-general of his majesty's buildings, and created knight of the Bath. On obtaining this post, he is said to have renounced his poetry for more important studies; though he afterwards wrote a fine copy of verses on the death of Cowley. He died at his office in Whitehall in 1668; and his works have been often since printed.

DENIER, a small French copper coin, of which 12 make a sol.

There are two kinds of deniers, the one *tournois*, the other *parisis*, whereof the latter was worth a fourth part more than the former.

DENIZEN, in *Law*, an alien made a subject by the king's letters patent; otherwise called *donajson*, because his legitimation proceeds *ex donatione regis*, "from the king's gift."

A denizen is in a kind of middle state between an alien and a natural-born subject, and partakes of both of them. He may take lands by purchase or devise, which an alien may not; but cannot take by inheritance; for his parent, through whom he must claim, being an alien, had no inheritable blood, and therefore could convey none to the son: and, upon a like defect of blood, the issue of a denizen born before denization, cannot inherit to him; but his issue born after may. A denizen is not excused from paying the alien's duty, and some other mercantile burdens. And no denizen can be of the privy-council, or either house of parliament, or have any office of trust civil or military, or be capable of any grant of lands, &c. from the crown.

DENMARK, one of the most ancient monarchies in Europe, comprehending the peninsula of Jutland, and the islands of Zealand, Funen, &c. But Denmark, properly so called, is only that part of Scandinavia which formerly went by the name of *Cimbrica Chersonesus*, and now is called *Jutland*. Including Holstein, it is bounded by the sea called the *Categate* on the north; by the Baltic on the east; by the river Elbe, which separates it from Bremen, on the south; and by the duchy of Saxe-Lauenburg towards the south-east; extending from 54. 40. to 58. 20. N. Lat.

The origin of the name *Denmark* is very uncertain. Name The most probable conjecture concerning it is that of whence de- *Saxo-Grammaticus*, the most ancient and best Danish ^{rived.} historian. He derives it from *Dan* the son of *Humble*, the first king, and *Mark* or *Marc*, signifying a country in several dialects of the Teutonic; according to which etymology, the word *Denmark* signifies the land or country of *Dan*. This *Dan* is thought to ² have lived about 1038 years before the Christian era, first king.

Denham
||
Denmark.

Denmark. Almost all historians agree that he was the son of *Humble*, a native of Zealand. His possessions and influence were very considerable, not only in Zealand, but in the islands of Langland and Mona. It was his courage, however, and skill in the art of war, that induced the inhabitants of Denmark to choose him for their king. He was called to the assistance of the Jutlanders upon an irruption of the Saxons into their territories, and promised the sovereignty of the country if he drove out the enemy. On this he immediately raised an army, gained a complete victory over the Saxons, and obliged them to leave the country; and he was accordingly elected king.

³ History of this country fabulous for many ages. In such early ages as these, we are not to look for any authentic history either of this or any other kingdom. The history of Denmark, for a great number of ages after the reign of *Din*, is filled with fabulous exploits of heroes, encounters with giants, dragons, &c. One of their kings named *Frotho*, who reigned about 761 years before Christ, is said to have conquered all Britain, Sleswick, Russia, Pomerania, Holstein, &c. an assertion which cannot easily be credited, considering the difficulty which succeeding warriors, even the greatest in the world, found to subdue the inhabitants of those countries.—It is certain, however, that anciently the kingdom of Denmark made a much more conspicuous figure than it does at present. The Danes appear to have had a very considerable naval force almost from the foundation of their empire; and the conquests they undoubtedly made in our island are certain proofs of their valour.

The natural enemies of the Danes, were the Swedes, Norwegians, and Saxons; especially the first. With one or other of these nations almost perpetual war was carried on. The kingdom was also often rent by civil dissensions; which the neighbouring monarchs did not fail to take advantage of, in order to reduce the kingdom of Denmark under their subjection. As neither party, however, generally came off with advantage, the history of these wars affords nothing interesting or entertaining. One of the greatest of the Danish monarchs was *Valdemar I.* who obtained the throne in 1157; having defeated and killed his competitor *Swegn*, after a ten years civil war. He maintained a long war with the Vandals, whose power he at last entirely broke, and reduced under his subjection the island of Rugen. He also proved victorious over the Norwegians, so that their king and queen came in person to submit to him. In 1165, he also laid the foundations of the city of Dantzic, which, though it hath since become a place of much consequence, consisted at first only of a few poor fishermen's huts; but the privileges and immunities conferred upon it by this monarch, soon proved the means of its becoming a flourishing city.—In 1169, he entirely subdued the Courlanders; and, soon after, was invested with the duchy of Holstein, by the emperor Frederic Barbarossa. He is said to have been poisoned by a quack medicine, given with a design to recover him from a distemper with which he was seized in 1182.

⁴ Power of Denmark in 1195.

In the year 1195, Canute, Valdemar's successor, caused a muster to be made of all the men fit to bear arms in his dominions; and ordered each province to fit out its proportion of shipping, every way equipped, and ready for action. The whole force of Denmark, at

that time, consisted of 670 ships of war, besides the squadrons supplied by vassals, tributary states, and allies. The number of the land forces is not mentioned. In the reign of this prince, the Danish dominions were enlarged by the entire conquest of Stomar, the districts of Lubec and Hamburg, formerly known by the name of *Nordalbingia*, but now included under the general name of *Holftein*. He died in 1203, and was succeeded by Valdemar II. who proved a very great and warlike prince. In 1211, he founded the city of Stralsund, opposite to the isle of Rugen. The same year his queen died in childbed; and in memory of her he built the castle of *Droningholm*, that name importing the *Queen's-Island*. In 1218, he undertook an expedition against the Livonians, having received advice that they, assisted by the Lithuanians, Muscovites, and other barbarous nations, had driven from their habitations all those in the neighbourhood who had embraced Christianity, and taken an oath of allegiance to the crown of Denmark. Fitting out a powerful fleet, therefore, he immediately set sail for that country; but his troops were no sooner landed, than they were seized with a panic at the sight of such a powerful army of savages as were assembled to oppose them. The king himself was dismayed at the unusual spectacle of a whole army clothed in skins, and resembling beasts more than human creatures. Encouraged, however, by the bishops who attended him, he ventured an engagement, and overthrew the barbarians with incredible slaughter. This victory was gained near the fortrefs of *Valdemar*, which received its name on that account.

⁷ How potent and flourishing the kingdom of Denmark was at this time, appears from an estimate of the revenues of the tributary provinces, those countries conquered by Valdemar, and the standing forces of the whole kingdom. This account was copied by Pontanus from Witfield, a writer of those days, who had it from a register kept by Valdemar's steward. From the provinces were daily sent in 24 lasts of oats, 24 lasts of rye, and half that quantity of wheat, 13 talents of cheese and butter, and nine of honey; 24 oxen, 300 sheep, 200 hogs; and 600 marks of coined money. This was the certain revenue: but to this was added near an equal sum from adventitious circumstances; such as fines, forfeitures, taxes on law-suits and pleadings, with a variety of other contingencies; the whole amounting to upwards of 100,000 marks a day, or 23,730,000l. per annum; a sum in those days almost incredible. With this revenue were kept for constant service 1400 great and small ships for the king's use, each of which at a medium carried 121 soldiers; making the whole of the standing forces, besides garrisons, consist of 169,400 fighting men.

In 1223, a very great misfortune befel Valdemar, notwithstanding all his power. Henry earl of Swerin, otherwise called *Henry Palatine*, a German prince, having been deprived of part of his dominions by Valdemar, surprised and carried off the king himself, and kept him close prisoner for three years. The conditions on which he at last obtained his liberty were very hard. He was obliged to pay a prodigious sum of money; to relinquish Holstein, Swerin, Hamburg, and all his possessions on the other side of the Elbe; and lastly, solemnly to swear that he would maintain this

Denmark.

⁶ Expedition of Valdemar II. against the Livonians.

⁷ Flourishing state of the kingdom.

⁸ Valdemar taken prisoner.

⁹ Released on condition of ceding part of his territories.

Denmark. this compulsive contract, and never take any measures to punish Henry or his associates. This treaty was signed on the 25th of March 1226.

10
He breaks the treaty, but is defeated.

Besides these territories which the Danish monarch had been obliged to cede by treaty, many tributary princes took the opportunity of his captivity to recover their liberty; and among the rest, the inhabitants of Lubec revolted, and entered into alliance with Albert duke of Saxony against Valdemar. The latter, however, was not of a disposition to submit tamely to such treatment. He obtained a dispensation from the Pope to break his engagements with Henry, and immediately entered Holstein at the head of a numerous army. Here he was met by several German princes, at the head of a very numerous army; and a desperate engagement ensued. Valdemar at first had the advantage; but being wounded in the eye, his troops were at last defeated with great slaughter. It doth not appear that ever the king of Denmark was able to revenge himself of his enemies, or to recover the dominions he had lost. So far from this, he was obliged, in 1228, to cede Lauenburg to the duke of Saxony, who had already seized on Ratzburg and Molna. Soon after this, his eldest son Valdemar was accidentally killed as he was hunting, and his two other sons married the daughters of his two greatest enemies. Abel, the third son, married the daughter of Adolphus duke of Holstein; and Eric, the second, married the duke of Saxony's daughter. These misfortunes are supposed to have hastened his death, which happened in the month of April 1242.

11
Civil war between his two sons.

On the death of Valdemar, the kingdom was divided between the two young princes; and between them a war commenced the very next year. A peace was concluded the year following, and war renewed the year after: but how long it continued, we are not informed. In 1250, Eric paid a visit to his brother Abel, intreating his mediation between him and the princes of Holstein, with whom he was then at war. Abel received him, in appearance, with great kindness, and promised that his utmost endeavours to procure a reconciliation should not be wanting; but in the meantime, laid a plan for having him murdered at sea: this was effected, and Abel became master of the whole kingdom.

The new king did not long enjoy the sovereignty he had so wickedly obtained. He was tormented by his own conscience; especially when he found among his brother's papers, one by which he was left heir to the whole kingdom on the death of Eric, and many kind expressions with regard to himself. He was at last killed in a battle with his own subjects in 1252, on account of some taxes he intended to impose.

12
Kingdom divided among a number of petty tyrants.

From this time to the year 1333, the kingdom of Denmark gradually declined. Usurpers established themselves in different provinces; while the kings of Sweden did not fail to avail themselves of the distracted state of the Danish affairs. In 1333, died Christopher II. who possessed only the cities of Scanderburg in Jutland and Neoburg in Fionia, with some few other inconsiderable places, of all the hereditary dominions of Denmark. Halland, Holbec, Calemburg, and Samsoe, were held by Canute Perfus; Schonon, Lyftre, and Bleking, by the king of Sweden, to whom they had been lately sold; John earl of Wagria had

the jurisdictions of Zealand, Faltre, Laaland, and Femenin; Gerhard, of Jutland and Fionia; and Lawrence Jonea of Langland and Arras. Denmark.

After the death of Christopher, an interregnum of seven years ensued.—The first attempt for the sovereignty was made by Otho, second son to the late king, who laid a scheme for driving Gerhard out of Jutland; but not being able to accomplish it, he was taken prisoner, and closely confined by Gerhard. The king of Sweden next wrote to Pope Benedict XIII. beseeching his Holiness to confirm to him the provinces of Schonon and others which he possessed; and to allow him to subdue the rest of the kingdom, which was now usurped and rendered miserable by a set of petty princes, who knew not how to govern. To influence him the more powerfully, he also promised to hold this kingdom of the Pope; and to pay him the usual tax collected by the church. This request, however, was refused. Valdemar of Sleswic, nephew to Gerhard, then aspired to the sovereignty. He had formerly been elected king; but had given over all thoughts of enjoying the sovereignty, on account of the superior influence of Christopher; but now resumed his ambitious views at the instigation of his uncle. Several of the nobility also cast their eyes on young Valdemar, Christopher's son, now at the emperor's court. But while each of these princes were laying schemes to aggrandise themselves, the unhappy Danes were distressed by exorbitant taxes, famine, and pestilence; the two last in consequence of the former. The peasants neglected to cultivate the lands, which they held on a very precarious tenure; the consequence of this was poverty and an unwholesome diet; and this, co-operating with the peculiar disposition of the air, produced a plague, which destroyed more than half the inhabitants of the country. The poor dropped down dead on the streets with disease and hunger, and the gentry themselves were reduced to a state of wretchedness; yet, though the whole of the kingdom was evidently on the verge of ruin, ambitious projects employed the great, as if every thing had been in the most profound tranquillity.

13
Distressed state of the kingdom.

In the midst of these grievous calamities, Gerhard sovereign of Jutland, proposed to his nephew Valdemar an exchange of territories, which he believed would prove favourable to the designs of the latter on the crown. A treaty for this purpose was actually drawn up and signed; but the inhabitants, notwithstanding their distressed situation, so highly resented their being disposed of like cattle from one master to another, that they refused to pay the usual taxes. Gerhard resolved to compel them; and therefore led 10,000 men, whom he had levied in Germany, into the heart of the province. Providence, however, now raised up an enemy to this tyrant. One Nicholas Norevi, a man greatly esteemed for his courage, public spirit, and prudence, beheld with sorrow the condition to which Denmark was reduced. He had long meditated a variety of projects for its relief, and at last imagined things were in such a situation that the whole depended on his single arm. Young Valdemar, Christopher's son, had a number of adherents in the kingdom; his most dangerous enemy was Gerhard; and could he be removed, the Jutlanders would at least be free from an oppressor, and might choose Valdemar, or any other they thought proper,

14
Nicholas Norevi recovers the liberty of Jutland.

^{Denmark.} proper, for their sovereign. Collecting a body of chosen horse, therefore, he marched in the night to Randerhusen, where Gerhard had fixed his head quarters; and having forced open the tyrant's quarters, immediately put him to death. He then fled with the utmost expedition; but was pursued and overtaken by a party of the enemy's horse, through which he forced his way and escaped. Gerhard's sons hearing of his death, retired into Holstein, from whence they had come; leaving the army, composed chiefly of Holsteiners, to be cut in pieces by the enraged peasants, who fell upon them from every quarter.

Still, however, the Holsteiners kept possession of the citadels and fortified places, from whence Nicholas resolved to dislodge them. He accordingly raised a body of forces; attacked and took Landen, a castle situated on the river Scherne: After which he laid siege to Albeg; but the garrison making an obstinate defence, he turned the siege into a blockade, by which they were soon reduced to great extremity. The governor sent an express to the sons of Gerhard, acquainting them with the impossibility of his holding out more than a few days, without being relieved. This determined them to march to the relief of so important a place. They came up with Nicholas just as the governor was ready to surrender, but were defeated; though Nicholas was unfortunately killed in the engagement.

Jutland having thus regained its liberty, the rest of the kingdom followed its example. Zealand first openly declared itself. Here Henry, Gerhard's son, maintained several garrisons; and resolved to defend his possessions in spite of all the power of the inhabitants. For this purpose he drew together an army; but, in the mean time, a tumult arose among the peasants on account of a Danish nobleman slain by the Holsteiners. By this the people were at last so irritated, that falling upon the Holsteiners sword in hand, they killed 300 of them, drove the rest out of the island, and chose Valdemar, Christopher's son, for their sovereign.

¹⁶ Margaret unites the crowns of Denmark, Sweden, and Norway. The Danes now resumed their courage; the lands were cultivated, the famine and pestilence ceased, and the kingdom began to flourish as formerly. Matters continued in a prosperous way till 1387, when Margaret mounted the throne. She raised the kingdom to its highest pitch of glory, as partly by her address, and partly by hereditary right, she formed the union of Calmar, by which she was acknowledged sovereign of Sweden, Denmark, and Norway. She held her dignity with such firmness and courage, that she was justly styled the *Semiramis of the North*. Her successors being destitute of her great qualifications, the union of Calmar fell to nothing: but Norway still continued annexed to Denmark. About the year 1448, the crown of Denmark fell to Christian count of Oldenburg, from whom the present royal family of Denmark is descended; and, in 1536, the Protestant religion was established in Denmark by that wise and politic prince Christian III.

Christian IV. of Denmark, in 1629, was chosen for the head of the Protestant league formed against the house of Austria: but, though brave in his own person, he was in danger of losing his dominions; when he was succeeded in that command by the famous Gu-

stavus Adolphus, king of Sweden. The Dutch having obliged Christian, who died in 1648, to lower the duties of the Sound, his son Frederic III. consented to accept of an annuity of 150,000 florins for the whole. The Dutch, after this, persuaded him to declare war against Charles Gustavus king of Sweden, which had almost cost him his crown in 1657. Charles stormed the fortrefs of Fredericstadt; and in the succeeding winter, he marched his army over the ice to the island of Funen, where he surpris'd the Danish troops, took Odensee and Nyburg, and marched over the Great Belt to besiege Copenhagen itself. Cromwell, the English usurper, interposed: and Frederic defended his capital with great magnanimity till the peace of Roschild; by which Frederic ceded the provinces of Halland, Bleking, and Sconia, the island of Bornholm, Bahus, and Drontheim, in Norway, to the Swedes. Frederic sought to elude those severe terms; but Charles took Cronenburg, and once more besieged Copenhagen by sea and land. The steady intrepid conduct of Frederic under these misfortunes endeared him to his subjects; and the citizens of Copenhagen made an admirable defence, till a Dutch fleet arrived in the Baltic, and beat the Swedish fleet. The fortune of war was now entirely changed in favour of Frederic, who showed on every occasion great abilities, both civil and military: and having forced Charles to raise the siege of Copenhagen, might have carried the war into Sweden, had not the English fleet, under Montague, appeared in the Baltic. This enabled Charles to besiege Copenhagen a third time; but France and England offering their mediation, a peace was concluded in that capital; by which the island of Bornholm returned to the Danes; but the island of Rugen, Bleking, Halland, and Schonen, remained with the Swedes.

¹⁸ Remark-able revolution, by which the king is rendered absolute. The year 1660 affords us an example of a revolution almost unequalled in the annals of history, viz. that of a free people resigning their liberty into the hands of their sovereign; and of their own accord, and without the least compulsion, rendering him despotic. This was occasioned by the great character which Frederic had acquired by his prudent and valiant conduct when Copenhagen was besieged by the king of Sweden; and at that time he had also taken care to ingratiate himself with the commonalty, by obliging the nobility to allow them some immunities which they did not enjoy before; allowing them also, by a special edict, to possess lands, and enjoy all the privileges of nobility. After the conclusion of the treaty with Sweden, a diet was summoned at Copenhagen, to take into consideration the state of the kingdom, which was now very much exhausted, both by reason of the debts in which it was involved, and by the calamities of war. This distressed state of affairs was, by the commons, attributed to the nobility; who on the other hand, took no care to conciliate the affections of the inferior classes, but rather increased the discontents by their arrogance. They had even the imprudence to remonstrate against the immunities above-mentioned, which had been granted by the king during the siege. In consequence of this the deputies of the commons and clergy united against them; and being joined by the citizens of Copenhagen, formed a very considerable party. On bringing forward in the assembly the sums necessary for the

Denmark. the national exigencies, a general excise was proposed by the nobles on every article of consumpt; and to which they themselves were willing to submit, though, by an express law, their order was to be exempted from all taxes. This offer was accompanied with a remonstrance to the king; in which they endeavoured, not only to reclaim many obsolete privileges, but to add fresh immunities, and introduce many other regulations, all of them tending to diminish the royal prerogative, and check the rising influence of the commons and clergy. This proposal occasioned great disputes in the diet; and the two inferior orders insisted that they would not admit of any tax which should not be levied equally upon all ranks, without reserve or restriction. The nobles not only refused to comply with this proposal, but even to be subject to the tax for more than three years; pretending that all taxes whatever were infringements on their privileges. By way of compensation, however, they proposed new duties upon leather and stamped paper, and at last offered to pay a poll-tax for their peasants. This exchange seemed at first to be agreeable to the two inferior estates; but they suddenly altered their mind, and demanded that the fiefs and domains, which the nobles had hitherto possessed exclusively, and at a very moderate rent, should be let to the highest bidder.

Such a proposal appeared to the nobles to be to the last degree unreasonable. They said it was an infringement of their dearest privileges; as, by the 46th article of the coronation oath taken by Frederic, the possession of the royal fiefs was guaranteed to their order; but, in the heat of dispute, one of the chief senators having imprudently thrown out some reproachful expressions against the commons, a general ferment ensued, and the assembly was broken up in confusion. This gave occasion to the interposition of the king's friends; and an idea of rendering the crown hereditary, and enlarging the royal prerogative, began to be suggested as the proper method of humbling the nobility. This was first broached by the bishop of Zealand, at whose house a numerous meeting was held on the 6th of October 1660, where the scheme was fully laid open and approved; an act for rendering the crown hereditary drawn up; and the best method of publicly producing it taken into consideration. All this time the king seemed quite inactive, nor could he be prevailed upon to take any part in an affair which so nearly concerned him. But this indolence was abundantly compensated by the alertness and diligence of the queen; between whom and the heads of the party matters were soon concerted. On the morning of the 8th of October, therefore, the bishop of Zealand having obtained the consent and signature of the ecclesiastical deputies, delivered it to Naufen, burgomaster of Copenhagen and speaker of the commons. The latter, in a most persuasive speech, expatiated upon the wretched state of the kingdom, the oppressive power of the nobles, and the virtues of the king; concluding with an exhortation to the commons, to subscribe the act, as the only means of saving their country.

The exhortations of the speaker had such an effect upon the assembly, that they subscribed it without a single dissent; the nobles being all the while in perfect security, and entirely ignorant of the transaction. Next day it was presented to the king by the bishop and

Naufen; and as they were returning from the palace, they met the senator who had already given offence to the commons. With him they had a violent altercation, and were threatened with imprisonment for presuming to approach the king without acquainting the order of nobles. This threat was now altogether nugatory. The nobles having got some intelligence of what was going forward, had just assembled in order to consider of what was to be done, when the deputies of the two other estates entered, and informed them of their proceedings, and delivered to them the proposal for rendering the crown hereditary. By this declaration the nobles were thrown into the utmost consternation; but judging it improper to put a negative on the proposal at present, they endeavoured to gain time, and replied, that through they willingly gave their assent to the declaration, yet that, as it was a matter of great consequence, it deserved the most serious discussion. Naufen, however, replied, that the other estates had already taken their resolution; that they would lose no time in debate; and that if the nobles would not concur with them, they would immediately repair to the palace by themselves, where they had not the least doubt that the king would graciously accept their proffer.

In the mean time the nobles had privately dispatched a message to the king, intimating, that they were willing to render the crown hereditary to the male line of his issue, provided it was done with all the usual formalities. But this proposal did not prove agreeable to his majesty, unless they would confirm the right of succession in the female line also. He added, however, with great appearance of moderation, that he by no means wished to prescribe rules for their conduct; they were to follow the dictates of their own judgment; but as for his part, he would owe every thing to their free consent. While the nobles were waiting for this answer, the other deputies, perceiving that they wished to keep the matter in suspense, lost all patience, and repaired in solemn procession to the court; where, being admitted into the royal presence, the matter was opened by the bishop of Zealand. He addressed his majesty on the resolution taken by the clergy and commons, offering in their name to render the crown hereditary, and to invest him with absolute authority; adding, that they were ready to sacrifice their lives in the defence of an establishment so salutary to their country. His majesty thanked them for their favourable intentions; but mentioned the concurrence of the nobles as a necessary condition; though he had no doubt of this when they should have time to accompany the declaration with all the necessary formalities; he assured them of his protection, promised a redress of all grievances, and dismissed them with an exhortation to continue their sittings, until they should have brought their design to perfection, and he could receive their voluntary submission with all due solemnity.

On departure of the commons from the place where they had been conferring with the nobles, the latter had been so distracted and confused, that they broke up without coming to any resolution, designing, however, to decide the matter finally at their meeting on the afternoon of the following day. But while they were thus wavering and irresolute, the court and the popular party took the necessary measures to force them

Denmark. to a concurrence. This was effectually done by an order to shut the gates; for by this they were so much dispirited, that they instantly dispatched deputies to the court, with a message that they were ready to concur with the commons, and subscribe to all the conditions of the royal pleasure.

Nothing now remained but to ratify the transaction with all proper solemnity. Accordingly, on the 16th of October, the estates annulled, in the most solemn manner, the capitulation or charters signed by the king on his accession to the throne; absolved him from all his engagements; and cancelled all the limitations imposed upon his sovereignty. The whole was concluded by the ceremony of doing homage, taking the new oath with great ceremony; after which a new form of government was promulgated under the title of *The Royal Law of Denmark*.

Frederic was succeeded in 1670 by his son Christian V. who obliged the duke of Holstein Gottorp to renounce all the advantages he had gained by the treaty of Roschild. He then recovered a number of places in Schonen; but his army was defeated in the bloody battle of Lunden by Charles XI. of Sweden. This defeat did not put an end to the war, which Christian obstinately continued, till he was defeated entirely at the battle of Landskroon; and he had almost exhausted his dominions in his military operations, till he was in a manner abandoned by all his allies, and forced to sign a treaty on the terms prescribed by France, in 1679. Christian, however, did not desist from his military attempts; and at last he became the ally and subsidiary of Louis XIV. who was then threatening Europe with chains. Christian, after a vast variety of treating and fighting with the Holsteiners, Hamburgers, and other northern powers, died in 1699. He was succeeded by Frederic IV. who, like his predecessors, maintained his pretensions upon Holstein; and probably must have become master of that duchy, had not the English and Dutch fleets raised the siege of Tonningen; while the young king of Sweden, Charles XII. who was no more than 16 years of age, landed within eight miles of Copenhagen, to assist his brother-in-law the duke of Holstein. Charles probably would have made himself master of Copenhagen, had not his Danish majesty agreed to the peace of Travendahl, which was entirely in the duke's favour. By another treaty concluded with the states-general, Frederic obliged himself to furnish a body of troops, who were to be paid by the confederates; and who afterwards did great service against the French.

19
Perpetual
wars with
Sweden.

Notwithstanding this peace, Frederic was perpetually engaged in a war with the Swedes; and while Charles was an exile at Bender, he marched through Holstein into Swedish Pomerania; and in the year 1712 into Bremen, and took the city of Stade. His troops, however, were totally defeated by the Swedes at Gadesbusch, who laid his favourite city of Altena in ashes. Frederic revenged himself, by seizing great part of the ducal Holstein, and forcing the Swedish general, Count Steinbock, to surrender himself prisoner, with all his troops. In the year 1716, the successes of Frederic were so great, by taking Tonningen and Stralsund, by driving the Swedes out of Norway, and reducing Wismar and Pomerania, that his allies began to suspect he was aiming at the sovereignty of all Scandinavia. Up-

on the return of Charles of Sweden from his exile, he renewed the war against Denmark with a most embittered spirit; but on the death of that prince, who was killed at the siege of Fredericshal, Frederic durst not refuse the offer of his Britannic majesty's mediation between him and the crown of Sweden; in consequence of which, a peace was concluded at Stockholm, which left him in possession of the duchy of Sleswick. Frederic died in the year 1730, after having, two years before, seen his capital reduced to ashes by an accidental fire. His son and successor, Christian Frederic, made no other use of his power, and the advantages with which he mounted the throne, than to cultivate peace with all his neighbours, and to promote the happiness of all his subjects, whom he eased of many oppressive taxes.

In 1734, after guaranteeing the Pragmatic Sanction, Christian sent 6000 men to the assistance of the emperor, during the dispute of the succession to the crown of Poland. Though he was pacific, yet he was jealous of his rights, especially over Hamburg. He obliged the Hamburgers to call in the mediation of Prussia, to abolish their bank, to admit the coin of Denmark as current, and to pay him a million of silver marks. He had, two years after, viz. in 1738, a dispute with his Britannic majesty about the little lordship of Steinborst, which had been mortgaged to the latter by the duke of Holstein Lauenburg, and which Christian said belonged to him. Some blood was spilt during the contest; in which Christian, it is thought, never was in earnest. It brought on, however, a treaty, in which he availed himself of his Britannic majesty's predilection for his German dominions; for he agreed to pay Christian a subsidy of 70,000l. sterling a-year, on condition of keeping in readiness 7000 troops for the protection of Hanover: this was a gainful bargain for Denmark. And two years after, he seized some Dutch ships for trading without his leave to Iceland: but the difference was made up by the mediation of Sweden. Christian had so great a party in that kingdom, that it was generally thought he would revive the union of Calmar, by procuring his son to be declared successor to his then Swedish majesty. Some steps for that purpose were certainly taken: but whatever Christian's views might have been, the design was frustrated by the jealousy of other powers, who could not bear the thoughts of seeing all Scandinavia subject to one family. Christian died in 1746, with the character of being the father of his people.

20
An advan-
taged treaty with
Great Britain.

His son and successor, Frederic V. had, in 1743, married the princess Louisa, daughter to his Britannic majesty. He improved upon his father's plan for the happiness of his people; but took no concern, except that of a mediator, in the German war. For it was by his intervention that the treaty of Closterseven was concluded between his royal highness the duke of Cumberland and the French general Richelieu. Upon the death of his first queen, the mother of his successor, he married a daughter of the duke of Brunswick Wolfenbuttel; and died in 1766.

He was succeeded on the throne by his son Christian VII. who married the princess Carolina Matilda of England. But this alliance proved extremely

Denmark. tremely unfortunate, which is generally ascribed to the intrigues of the queen-dowager, mother-in-law to the present king. She is represented as ambitious, artful, and designing; and as one who wished to have set aside the king himself in favour of her own son Frederic. On the arrival of the young queen, however, she received her with much apparent affection, telling her the faults of her husband, at the same time promising to assist her on all occasions in reclaiming him from his vicious courses. Thus, under pretence of kindness and friendship, she sowed the seeds of dissension betwixt the royal pair, before the unfortunate princess had the least suspicion of her danger; and while the unthinking queen revealed to the dowager all her secrets, the latter is said to have placed spies about the king to keep him constantly engaged in riot and debauchery, to which he was at any time too much inclined. At last it was contrived to throw a mistress in his way, whom he was advised to keep in his palace. — It was impossible that any woman could pass such a piece of conduct unnoticed; however, in this affair, the queen-dowager behaved with her usual duplicity. In the absence of the king, she pretended great resentment against him, and even advised the queen not to live with him; but as soon as he returned, when his consort reproached him, though in a gentle manner, with his conduct, she not only took his part, but insisted that it was presumptuous in a queen of Denmark to pretend to direct her husband's conduct. Notwithstanding this incendiary behaviour, the queen was in a short time reconciled to her husband, and lived on very good terms with him until she again excited the jealousy of the dowager, by assuming to herself the direction of that part of the public affairs which the dowager had been accustomed to look upon as her own privilege. For some time it seemed to be difficult for her to form any effectual plan of revenge, as the king had displaced several of her friends who had for some time had a share in the administration. Two new favourites, Brandt and Struensee, had now appeared; and as these paid great court to the queen, the dowager took occasion to insinuate, not only that the queen was harbouring improper designs with regard to the government, but that she had an intrigue with Struensee. The new ministers indeed behaved imprudently, in attempting to make a reformation in several of the departments of the state at once, instead of waiting patiently until an opportunity should offer; and in these precipitate schemes they were certainly supported by the queen. These instances of want of circumspection in the ministers were represented by the dowager and her party to be a settled scheme to make an alteration in the government; and a design was even spoken of to supersede the king as being incapable of governing, to declare the queen regent during the minority of her son, and to make Struensee prime minister.

Thus a very formidable opposition was formed against Brandt and Struensee; and as the latter had made some innovations in the military department as well as the civil, some of the principal officers, who were the creatures of the dowager, represented him as designing to overthrow the whole system of government. When matters were brought to a proper bearing, it was at last resolved to surprise the king in the middle

VOL. VII. Part I.

of the night, and force him instantly to sign an order, which was to be ready prepared, for committing the obnoxious persons to separate prisons, accuse them of high treason in general, and particularly with a design to dethrone or poison the king. If this could not be properly authenticated, it was determined to suborn witnesses to confirm the report of a criminal correspondence between the queen and Count Struensee. This design was executed on the night of the 16th of January 1772, when a masked ball was given at the court of Denmark. The queen, after having danced most part of the night with Count Struensee, retired to her chamber about two in the morning. About four the same morning, Prince Frederic got up, and went with the queen-dowager to the king's bed-chamber, accompanied by General Eichstedt and Count Rantzau. Having ordered the king's valet de chambre to awake him, they informed his majesty, that the queen, with Count Struensee, his brother, and Brandt one of the new ministers, were at that moment busy in drawing up an act of renunciation of the crown, which they would immediately after compel him to sign; and therefore there was a necessity for him to give an order for their arrestment. The king is said to have hesitated for some time, and inclined to refuse this scandalous requisition; but at length, through importunity, and, according to some accounts, being even threatened into compliance, he consented to what they required. Count Rantzau was dispatched at that untimely hour into the queen's apartments, and immediately executed the orders of the king. The unfortunate princess was conveyed in one of the king's coaches to the castle of Cronenburgh, together with the infant princess, attended by Lady Mostyn, and escorted by a party of dragoons. Struensee and Brandt were seized in their beds and imprisoned, as well as several other members of the new administration, to the number of 18. The queen-dowager and her adherents seemed to assume the government entirely into their own hands, and a total change took place in the departments of administration. The prince royal, son of Queen Matilda, then in the fifth year of his age, was put under the care of a lady of quality who was appointed governess, under the superintendency of the queen dowager. Struensee and Brandt were put in irons, and very severely treated; they underwent long and frequent examinations; and Struensee at last confessed that he had a criminal intercourse with the queen. Both their heads were struck off on the 28th of April; but many of their partisans were set at liberty. The confession of Struensee is by many, and indeed with no small degree of probability, supposed to have been extorted by fear of the torture, and to have no foundation in truth; but as no means were used by the court of Britain to clear up the queen's character, the affair must undoubtedly wear a suspicious aspect. At last, however, his Britannic majesty interfered so far as to send a small squadron of ships to convey the unhappy princess to Germany. Here the city of Zell was appointed for her residence; and in this place she died of a malignant fever on the 10th of May 1775, aged 23 years and 10 months.

The inhuman treatment of this princess did not long prove advantageous to the queen-dowager and her party: A new revolution took place in April 1784, when the queen-dowager's friends were removed, and a new administration.

Y

23
Change in
new stration.

21
Intrigues of
the dowager,
and
misfortunes
of the young
queen.

Denmark.

22
Execution
of Struensee
and Brandt.

Denmark. new council was formed under the auspices of the prince royal, and no instrument deemed authentic unless signed by the king and countersigned by the prince. Since that time, the king, who from the beginning of his administration showed a great degree of incapacity, has been entirely laid aside from public business, and has no share in the government. The Danes engaged on the side of Russia in her last war with the Turks, the immediate opponent of Denmark being Sweden.

24
Division of
the king-
dom.

The kingdom of Denmark at present is divided into six grand districts or provinces; viz. 1. Denmark properly so called, comprehending the islands of Zealand, Funen, Langland, Laaland, Falstria, Mona, Samsoe, Arroe, Bornholm, Anholt, Leflaw, and that part of the continent called *North Jutland*. 2. The duchy of Sleswick, or South Jutland. 3. The duchy of Holstein. 4. The earldoms of Oldenburg and Delmenhorst. 5. The kingdom of Norway; and, 6. Iceland, with the islands lying in the northern seas; for a particular description of which see these articles:

25
Language,
religion,
&c.

The language of Denmark is a dialect of the Teutonic, and bears a strong affinity to the Norwegian tongue; but is disagreeable to strangers, on account of the drawling tone with which it is pronounced. They have borrowed many words from the German; and indeed the High Dutch is used in common discourse by the court, the gentry, and the burghers. The better sort likewise understand French, and speak it fluently. The Lutheran doctrine is universally embraced through all Denmark, Sweden, and Norway; so that there is not another sect in these kingdoms. Denmark is divided into six dioceses, one in Zealand, one in Funen, and four in Jutland: but the bishops are, properly speaking, no other than superintendants, or *primi inter pares*. They have no cathedrals, ecclesiastical courts, or temporalities. Their business is to inspect the doctrine and morals of the inferior clergy. The revenue of the bishop of Copenhagen amounts to about 2000 rixdollars; and this is the richest benefice in the kingdom. The clergy are wholly dependent on the government. They never intermeddle, and are never employed or consulted in civil affairs. They nevertheless have acquired great influence, and erected a sort of spiritual tyranny over the minds of the common people, by whom they are much revered. They are, generally speaking, men of exemplary lives, and some erudition. Their churches are kept more clean, and better adorned, than those of England; the people are great lovers of music, and their organists commonly entertain the congregation for half an hour before and after service. The state of literature is very low in Denmark. There is, indeed, an university at Copenhagen; but meanly endowed, and very ill supplied with masters. Taste and the belles lettres are utterly unknown in this country, which yet has produced some men of great eminence in mathematics and medicine; such as Tycho Brahe, Borrichius, and the Bartholines.

26
Govern-
ment.

The constitution of Denmark was heretofore of the free Gothic original. The convention of the estates, even including the representatives of the boors or peasants, elected a king for his personal virtues, having still a regard to the son of their late monarch, whom, however, they made no scruple of setting aside, if they deemed him unworthy of the royal dignity. They

enacted laws; conferred the great offices of state; de-
bated all affairs relating to commerce, peace, war, and alliances; and occasionally gave their consent to the imposition of necessary taxes. The king was no other than chief magistrate, generalissimo, and as it were prime minister to his people. His business was to see justice administered impartially; to command the army in time of war; to encourage industry, religion, arts, and sciences; and to watch over the interests of his subjects.

In 1660, however, the constitution was new modelled, as has been already related, and which was to the following purport. "The hereditary kings of Denmark and Norway should be in effect, and ought to be esteemed by their subjects, the only supreme head upon earth; they shall be above all human laws, and shall acknowledge, in all ecclesiastical and civil affairs, no higher power than God alone. The king shall enjoy the right of making and interpreting the laws, of abrogating, adding to, and dispensing with them. He may also annul all the laws which either he or his predecessors shall have made, excepting this royal law, which must remain irrevocable, and be considered as the fundamental law of the state. He has the power of declaring war, making peace, imposing taxes, and levying contributions of all sorts," &c. &c.

Then follow the regulations for the order of succession, the regency in case of minority, the majority of the king, the maintenance of the royal family; and, after having enumerated all the possible prerogatives of regal uncircumscribed authority, as if sufficient had not yet been laid down, it is added in the 26th article: "All that we have hitherto said of power and eminence, and sovereignty, and if there is any thing further which has not been expressly specified, shall all be comprised in the following words: "The king of Denmark and Norway shall be the hereditary monarch, and endowed with the highest authority; inasmuch, that all that can be said and written to the advantage of a Christian, hereditary, and absolute king, shall be extended under the most favourable interpretation to the hereditary king and queen of Denmark and Norway," &c. &c.

The laws of Denmark are so concise, that the whole
body is contained in one quarto volume, written in the
language of the country. Every man may plead his
own cause, without employing either counsel or attorney;
but there are a few advocates for the benefit of
those who cannot or will not speak in their own defence.
The proceedings are so summary, that a suit
may be carried through all the courts, and finally decided
in 13 months. There are three courts in Denmark,
and an appeal lies from the inferior to the superior
tribunal. The lowest of these is, in cities and towns,
denominated the *Byfogtids Court*; and in the country,
the *Herredsfogtids*. Causes may be appealed from this
to the *Larslag*, or general head court for the province;
but the final appeal lies to the court of *High-right*
in Copenhagen, where the king presides in person,
assisted by the prime nobility. The judges of the two
other courts are appointed by his majesty's letters patent,
to sit and determine causes *durante bene placito*. These are
punishable for any misdemeanours of which they may be
guilty; and when convicted of having passed an unjust
sentence, they are condemned
to

27
Laws, &c.

Denmark. to make reparation to the injured party. Their salaries are very inconsiderable, and paid out of the king's treasury, from the fines of delinquents, besides a small gratuity from the plaintiff and defendant when sentence is passed. Such is the peculiar privilege enjoyed by the city of Copenhagen, that causes appealed from the Byfogtids court, instead of passing through the provincial court, are tried by the burgomaster and common council; from whence they proceed immediately to the highest court as the last resource. Affairs relating to the revenue are determined in the rent-chamber of Denmark, which is analogous to our court of exchequer. To another tribunal, composed of some members from this rent-chamber, from the admiralty, and college of commerce, merchants appeal for redress when their commodities are seized for non-payment of duties. All disputes relating to the sea are determined by the court of admiralty, constituted of commissioners appointed for these purposes. The chancellery may be more properly termed a *secretary's office*. It consists of clerks, who write and issue all the king's decrees and citations, transcribe papers, and according to the directions they receive, make draughts of treaties and alliances with other nations. The government of Denmark is very commendable for the excellent police it maintains. Justice is executed upon criminals with great severity; and such regulations are established as effectually prevent those outrages that are daily committed in other countries. No man presumes to wag his tongue against the government, far less to hatch schemes of treason. All the subjects are, or seem to be, attached to their sovereign by the ties of affection. Robbery on the highway, burglary, coining or clipping, are crimes seldom or never heard of in Denmark. The capital crimes usually committed are theft and manslaughter. Such offenders are beheaded very dexterously with one stroke of a sword. The executioner, though infamous, is commonly rich; because, beside the proper functions of his office, he is employed in other mean occupations, which few other persons will undertake. He, by means of his understrapper, called the *pracher*, empties all the jakes, and removes from houses, stables, or streets, dead dogs, horses, &c. which no other Dane would vouchsafe to touch on any consideration whatever.

23
Slavish condition of the Danish subjects.

The Danish nobility and gentry are all included in the term *noblesse*; and formerly there were no distinctions of title; but within these 60 or 70 years some few favourites have been dignified with the titles of *count* and *baron*. These, and these only, enjoy the privilege of disposing of their estates by will; though others may make particular dispositions, provided they have sufficient interest to procure the king's approbation and signature. The noblesse of Denmark formerly lived at their own seats with great magnificence; and at the conventions of estates met the king with numerous and superb retinues; but since he became absolute, they are so impoverished by exorbitant taxes, that they can hardly procure subsistence; but, for the most part, live obscurely in some corner of their ruined country palaces, unless they have interest enough to procure some employment at court. They no longer inherit the spirit and virtues of their ancestors; but are become servile, indolent, ostentatious, extravagant, and oppressive.

Their general character is a strange composition of *Denmark.* pride and meanness, insolence and poverty. If any gentleman can find a purchaser for his estate, the king, by the Danish laws, has a right to one-third of the purchase-money; but the lands are so burdened with impositions, that there would be no danger of an alienation, even though this restriction was not in force.— Nay, some gentlemen in the island of Zealand have actually offered to make a surrender to the king of large tracts of very fertile land in the island of Zealand, if his majesty would be pleased to accept of them in place of the impositions laid on them. The reason of this is, because, by the law of Denmark, if any estate is burdened beyond what it can bear, the owner must make up the deficiency out of his other estates, if he has any. Hence the king generally refuses such offers; and some gentlemen have been transported with joy when they heard that his majesty had been "graciously pleased to accept their whole estates."

This oppression of the nobles by the king produces in them a like disposition to oppress the commons; and the consequence of all this is, that there is no part of the world where extravagance and dissipation reign to such a degree. The courtiers maintain splendid equipages, wear fine clothes, drink a vast quantity of French wine, and indulge themselves with eating to excess. Such as derive money from their employment, instead of purchasing land in Denmark, remit their cash to the banks of Hamburgh and Amsterdam. The merchants and burghers tread in the steps of their superiors; they spend all their gains in luxury and pleasure, afraid of incurring the suspicion of affluence, and being stripped by taxation. The peasant, or boor, follows the same example. No sooner has he earned a rix-dollar than he makes haste to expend it in brandy, lest it should fall into the hands of his oppressive landlord. This lower class of people are as absolute slaves as the negroes in the West Indies, and subsist upon much harder fare. The value of estates is not computed by the number of acres, but by the stock of boors, who, like the timber, are reckoned a parcel of the freehold; and nothing can be more wretched than the state of these boors; they feed upon stock-fish, salted meats, and other coarse diet; there is not the least piece of furniture of any value in their houses, except feather-beds, of which there is great plenty in Denmark, and which are used not only as beds to lie on, but as blankets for covering. After the boor has toiled like a slave to raise the king's taxes, he must pay the overplus of his toil to his needy landlord. Should he improve his ground and repair his farm house, his cruel master will immediately transplant him to a barren farm and a naked habitation, that he may let the improved ground to another tenant at a higher price. The peasants likewise sustain a great deal of damage and violence from the licentious soldiers that are quartered in their houses. They are moreover obliged to furnish horses and waggons for the royal family and all their attendants, when the king makes a progress through the country, or removes his residence from one place to another. On such occasions the neighbouring boors are summoned to assemble with their cattle and carriages, and not only to live at their own expence, but to bear every species of outrage from the meanest lacquies of those who attend his majesty. The warlike spirit of the Danes no longer subsists; the com-

Denmark.

mon people are mean-spirited, suspicious, and deceitful, nor have they that talent for mechanics, so remarkable in some northern nations. While the peasants are employed in their labour without doors, the women are occupied at home in spinning yarn for linen, which is here made in great perfection.

29
Dress, &c.

In Denmark all persons of any rank above the vulgar dress in the French taste, and affect finery; the winter-dress of the ladies is peculiar to the country, very neat, warm, and becoming. The common people are likewise remarkably neat, and pride themselves in different changes of linen. They are very little addicted to jollity and diversion; their whole amusements consist in running at the goose on Shrove Tuesday, and in winter in being drawn in sledges upon the ice. With respect to marriage, the man and woman frequently cohabit together in contract long before the ceremony is performed; the nobility and gentry pique themselves on sumptuous burials and monuments for the dead; the corpse is very often kept in a vault, or in the chancel of a church, for several years, before an opportunity offers of celebrating the funeral.

The taverns in this country are poorly supplied; and he who diets in them must be contented to eat in a public room, unless he will condescend to pay an extravagant price for a private apartment; the metropolis is but indifferently furnished with game; the wild ducks and plover are hardly eatable; but the hares are good, and the markets sometimes produce tolerable roebuck; their sea-fish are not to be commended; but the rivers produce plenty of delicious carp, perch, and craw-fish; the gardens of the gentry are well provided with melons, grapes, peaches, and all sorts of greens and salads in perfection.

30
Army of
Denmark.

The army of Denmark is composed, 1. of the troops of Denmark and Holstein; and 2. of Norway.

The forces of Denmark and militia. These forces (the foot and horse guards excepted, who are all regulars) are not separated, as in our army, into distinct regiments, but are formed in the following manner: Before the late augmentation, every regiment of infantry, when complete, consisted of 26 officers and 1632 privates, divided into ten companies of fusiliers and two of grenadiers. Of these 1632 privates, 480, who are chiefly foreigners enlisted in Germany, are regulars. The remaining 1152 are the national militia, or peasants who reside upon the estates of their landholders, each estate furnishing a certain number in proportion to its value. These national troops are occasionally exercised in small corps upon Sundays and holidays; and are embodied once every year for about 17 days in their respective districts. By a late addition of ten men to each company, a regiment of infantry is increased to 1778, including officers. The expence of each regiment, which before amounted to 6000*l.* has been raised by the late augmentation to 8000*l.* The cavalry is upon the same footing; each regiment consisting of 17 officers, including serjeants and corporals, and 565 privates, divided into five squadrons. Of these about 260 are regular, and the remainder national troops. The regiments of foot and horse-guards are regulars; the former is composed of 21 officers and 465

men, in five companies; and the latter of 7 officers and 154 men, in two squadrons.

The forces of Norway are all national troops or militia, excepting the two regiments of Sundenfield and Nordenfield; and as the peasants of that kingdom are free, the forces are levied in a different manner from those of Denmark. Norway is divided into a certain number of districts, each whereof furnishes a foldier. All the peasants are, upon their birth, registered for the militia; and the first on the list supplies the vacancy for the district to which he belongs. After having served from 10 to 14 years, they are admitted among the invalids; and when they have attained the seniority of that corps, receive their dismissal. These troops are not continually under arms; but are only occasionally exercised, like the national forces of Denmark. A fixed stipend is assigned to the officers, nearly equal to that of the officers in the regulars; but the common soldiers do not receive any pay, except when they are in actual service, or performing their annual manoeuvres. The Academy of Land Cadets, instituted by Frederic IV. supplies the army with officers. According to this foundation, 74 cadets are instructed in the military sciences at the expence of the king. The whole amount of the Danish troops is computed at 60,000.

From their insular situation, the Danes have always excelled as a maritime people. In the earlier ages, when piracy was an honourable profession, they were a race of pirates, and issued from the Baltic to the conquests of England and Normandy. And though, since the improvement of navigation by the invention of the compass, other nations have risen to a greater degree of naval eminence, still, however, the Danes, as they inhabit a cluster of islands, and possess a large tract of sea-coast, are well versed in maritime affairs, and are certainly the most numerous, as well as the most experienced, sailors of the north.

The greatest part of the Danish navy is stationed in the harbour of Copenhagen, which lies within the fortifications; the depth of water being only 20 feet, the ships have not their lower tier of guns on board, but take them in when they get out of port. Besides large magazines, each vessel has a separate storehouse on the water's edge, opposite to which she is moored when in harbour, and may by this means be instantly equipped; the number of registered seamen are near 40,000, and are divided into two classes; the first comprises those inhabiting the coasts, who are allowed to engage in the service of merchant-ships trading to any part of the world. Each receives 8*s.* annually from the crown as long as he sends a certificate of his being alive; but is subject to a recal in case of war. The second comprehends the fixed sailors, who are constantly in the employ of the crown, and amount to about 4000, ranged under four divisions, or 40 companies: they are stationed at Copenhagen for the ordinary service of the navy, and work in the dock-yard. Each of them, when not at sea, receives 8*s.* per month, beside a sufficient quantity of flour and other provisions; every two years a complete suit of clothes; and every year breeches, stockings, shoes, and a cap. Some of them are lodged in barracks. When they sail, their pay is augmented to 20*s.* per month.

Denmark.

DENMARK, NORWAY, SWEDEN, And FINLAND.

Scale of Miles, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000



Denmark, month. The marine artillery consists of 800 men, in
 Dennis. four divisions.

31
 Navy. The whole navy consists of 38 ships of the line, including 9 of 50 guns and one of 44, and 20 frigates; but if we except those which are condemned, and those which are allotted only for parade, we cannot estimate that in 1779 the fleet consisted of more than 25 ships of the line, and 15 frigates fit for service; a number, however, fully adequate to the situation of Denmark: and if we include the excellence of the sailors, it must be esteemed as complete a navy as any in the north.

32
 Revenue.

The revenue of his Danish majesty arises from taxes laid on his own subjects, from the duties paid by foreigners, from his own estate, crown lands, and confiscations. The taxes are altogether arbitrary, and therefore fluctuating; but they are always grievous to the subject. They commonly consist of customs or toll, for export and import; of excise upon the consumption of wine, salt, tobacco, and all kinds of provisions; of taxes upon marriages, paper, brewing, grinding, and the exercise of different professions; of impositions on land, poll-money, ground-rent for all houses in Copenhagen and elsewhere; of money raised for maintaining fortifications, and for a portion to the king's daughter when she happens to be married; but this seldom exceeds 100,000 rix-dollars. One considerable article in the revenue is the toll paid by foreign ships that pass through the Sound, or *Ore Sound* (the strait between Schonen and Zealand), into the Baltic. This was originally no other than a small contribution, which trading nations agreed to make for maintaining lights at certain places, to direct their course through the passage in dark and stormy weather. At the same time these trading nations agreed, that every ship should pass this way, and pay its share of the expence, rather than use the Great Belt, which is the other passage, but unprovided with any such conveniency. In process of time the Danes converted this voluntary contribution into an exorbitant toll, and even exacted arbitrary sums in proportion to the weakness of the nation whose ships they visited. These exactions sometimes involved them in quarrels with their neighbours, and the toll was regulated in repeated treaties.

DENNIS, JOHN, the celebrated critic, was the son of a reputable tradesman in London, and born in the year 1657. He received the first branches of education at the great school in Harrow on the Hill, where he commenced acquaintance and intimacy with many young noblemen and gentlemen, who afterwards made considerable figures in public affairs, whereby he laid the foundation of a very strong and extensive interest, which might, but for his own fault, have been of infinite use to him in future life. From Harrow he went to Caius-college Cambridge; where, after his proper standing, he took the degree of bachelor of arts. When he quitted the university, he made the tour of Europe; in the course of which he conceived such a detestation for despotism, as confirmed him still more in those Whig principles which he had from his infancy imbibed.

On his return to England he became early acquainted with Dryden, Wycherly, Congreve, and Southerne; whose conversation inspiring him with a passion for poetry, and a contempt for every attainment that had not something of the *belles lettres*, diverted

him from the acquisition of any profitable art, or the exercise of any profession. This, to a man who had not an independent income, was undoubtedly a misfortune: however his zeal for the Protestant succession having recommended him to the patronage of the duke of Marlborough, that nobleman procured him a place in the customs worth 120*l.* per annum; which he enjoyed for some years, till from profuseness and want of economy, he was reduced to the necessity of disposing of it to satisfy some very pressing demands. By the advice of Lord Halifax, however, he reserved to himself, in the sale of it, an annuity for a term of years; which term he outlived, and was, in the decline of his life, reduced to extreme necessity.

Mr Theo. Cibber relates an anecdote of him, which we cannot avoid repeating, as it is not only highly characteristic of the man whose affairs we are now considering, but also a striking and melancholy instance, among thousands, of the distressful predicaments into which men of genius and literary abilities are perhaps apter than any others to plunge themselves, by paying too slight an attention to the common concerns of life, and their own most important interests. "After that he was worn out (says that author) with age and poverty, he resided within the verge of the court, to prevent danger from his creditors. One Saturday night he happened to saunter to a public house, which in a short time he discovered to be without the verge. He was sitting in an open drinking-room, when a man of a suspicious appearance happened to come in. There was something about the man which denoted to Mr Dennis that he was a bailiff. This struck him with a panic; he was afraid his liberty was at an end; he sat in the utmost solicitude, but durst not offer to stir lest he should be seized upon. After an hour or two had passed in this painful anxiety, at last the clock struck twelve; when Mr Dennis, in an ecstasy, cried out, addressing himself to the suspected person, "Now, Sir, bailiff or no bailiff, I don't care a farthing for you, you have no power now." The man was astonished at his behaviour; and when it was explained to him, was so much affronted with the suspicion, that had not Mr Dennis found his protection in age, he would probably have smarted for his mistaken opinion. A strong picture of the effects of fear and apprehension, in a temper naturally so timorous and jealous as Mr Dennis's; of which the following is a still more whimsical instance. In 1704 came out his favourite tragedy, "*Liberty Asserted*;" in which were so many strokes on the French nation, that he thought they were never to be forgiven. He had worked himself into a persuasion that the king of France would insist on his being delivered up, before he would consent to a peace; and full of this idea of his own importance, when the congress was held at Utrecht, he is said to have waited on his patron the duke of Marlborough, to desire that no such article might be stipulated. The duke told him he had really no interest then with the ministry; but had made no such provision for his own security, though he could not help thinking he had done the French as much injury as Mr Dennis himself. Another story relating to this affair is, that being at a gentleman's house on the coast of Suffex, and walking one day on the sea-shore, he saw a ship sailing, as he fancied, towards him; he instantly set out for London,

Dennis.

Denomina-
tion
||
Density.

in the fancy that he was betrayed; and congratulating himself on his escape, gave out that his friend had decoyed him down to his house, to surrender him up to the French.

Mr Dennis, partly through a natural peevishness and petulance of temper, and partly perhaps for the sake of procuring the means of subsistence, was continually engaged in a paper-war with his contemporaries, whom he ever treated with the utmost severity: and, though many of his observations were judicious, yet he usually conveyed them in language so scurrilous and abusive, as destroyed their intended effect; and as his attacks were almost always on persons of superior abilities to himself, viz. Addison, Steele, and Pope, their replies usually turned the popular opinion so greatly against him, that, by irritating his testy temper the more, it rendered him a perpetual torment to himself; till at length, after a long life of vicissitudes, disappointments, and turmoils, rendered wretched by indifferention, and hateful by malevolence, having outlived the reversion of his estate, and reduced to distress, from which his having been daily creating enemies had left him scarcely any hopes of relief, he was compelled to what must be the most irksome situation that can be conceived in human life, the receiving obligations from those whom he had been continually treating ill. In the very close of his days, a play was acted for his benefit at the little theatre in the Hay-market, procured through the united interests of Messrs Thomson, Mallet, and Pope; the last of whom, notwithstanding the gross manner in which Mr Dennis had on many occasions used him, and the long warfare that had subsisted between them, interested himself very warmly for him; and even wrote an occasional prologue to the play, which was spoken by Mr Cibber. Not long after this, viz. on the 6th of January 1733, he died, being then in the 77th year of his age.

Mr Dennis certainly was possessed of much erudition, and a considerable share of genius. In prose, he is far from a bad writer, where abuse or personal scurrility does not mingle itself with his language. In verse, he is extremely unequal; his numbers being at some times spirited and harmonious, and his subjects elevated and judicious; and at others flat, harsh, and puerile.—As a dramatic author, he certainly deserves not to be held in any consideration. It was justly said of him by a wit, that he was the most complete instructor for a dramatic poet, since he could teach him to distinguish good plays by his *precepts*, and bad ones by his *examples*.

DENOMINATION (from *denomino*, of *de* and *no-men*, "a name"); a name imposed upon any thing, usually expressing some quality predominant therein.

DENOMINATOR, in *Arithmetic*, a term used in speaking of fractions. See **ARITHMETIC**, N^o 21.

DENOMINATOR of a *ratio*, is the quotient arising from the division of the antecedent by the consequent. Thus, 6 is the denominator of the ratio 30 to 5; because 30 divided by 5 gives 6. This is otherwise called the *exponent of the ratio*.

DENSITY of **BODIES**, is that property directly opposite to rarity, whereby they contain such a quantity of matter under such a bulk.

Accordingly, a body is said to have double or triple the density of another body, when their bulk being

equal, the quantity of matter is in the one double or triple the quantity of matter in the other.

DENSITY of the *Air*, is a property that has employed the later philosophers, since the discovery of the Torricellian experiment.

It is demonstrated, that in the same vessel, or even in vessels communicating with each other, at the same distance from the centre, the air has everywhere the same density. The density of air, *ceteris paribus*, increases in proportion to the compressing power. Hence the inferior air is denser than the superior; the density, however, of the lower air is not proportional to the weight of the atmosphere, on account of heat and cold, and other causes perhaps, which make great alterations in density and rarity. However, from the elasticity of the air, its density must be always different at different heights from the earth's surface; for the lower parts being pressed by the weight of those above, will be made to accede nearer to each other, and the more so as the weight of the incumbent air is greater. Hence the density of the air is greatest at the earth's surface, and decreases upwards in geometrical proportion to the altitudes taken in arithmetical progression.

If the air be rendered denser, the weight of bodies in it is diminished; if rarer, increased, because bodies lose a greater part of their weight in denser than in rarer mediums. Hence, if the density of the air be sensibly altered, bodies equally heavy in a rarer air, if their specific gravities be considerably different, will lose their equilibrium in the denser, and the specifically heavier body will preponderate. See **PNEUMATICS**.

DENTALIUM, a shell-fish belonging to the order of vermes testacea. See **CONCHOLOGY Index**.

DENTARIA, **TOOTH-WORT**, or *Tooth-violet*: A genus of plants belonging to the tetradynamia class; and in the natural method ranking under the 39th order, *Siliquosæ*. See **BOTANY Index**.

DENTATUS, **CURIUS**, a renowned disinterested Roman general, whose virtues render him more memorable than even his great military reputation, flourished 272 years B. C. He was thrice consul; he conquered the Samnites, Sabines, and Lucanians; and gave each citizen 40 acres of land, allowing himself no more. The ambassadors of the Samnites making him a visit, found him boiling turnips in a pipkin; upon which they offered him gold to come over to their interest; but he told them, his design was not to grow rich, but to command those who were so. He defeated Pyrrhus near Tarentum, and received the honour of a triumph.

DENTECLA, in *Botany*: A genus of plants belonging to the pentandria class. See **BOTANY Index**.

DENTILES, or **DENTILS**, in *Architecture*, an ornament in corniches bearing some resemblance to teeth, particularly used in the Ionic and Corinthian orders. See **ARCHITECTURE**.

DENTIFRICE, in *Medicine*, a remedy for the teeth. There are various kinds; generally made of earthy substances finely pounded, and mixed with alum, or some other saline substances: but these are pernicious on account of their wearing away the enamel of the teeth, but more especially by the septic quality with which these earthy substances are endowed. On this account, a portion of Peruvian bark finely powdered is now commonly added, which answers the double purpose

Density
||
Dentifrice.

Dentical- purpose of cleaning the teeth, and preserving them af-
pra terwards from corruption.

Dephleg- DENTISCALPRA, in *Surgery*, an instrument for
mation. scouring yellow, livid, or black teeth; to which being
applied near the gums, it scrapes off the foul morbid
crust.

DENTITION, the breeding or cutting the teeth
in children. See *MEDICINE Index*.

DENUNCIATION, a solemn publication or pro-
mulgation of any thing.

All vessels of enemies are lawful prizes, after denun-
ciation or proclamation of war. The design of the
denunciation of excommunicated persons is, that the
sentence may be the more fully executed by the per-
son's being more known.

DENUNCIATION at the Horn, in *Scots Law*. See *LAW
Index*.

DENYS THE LITTLE. See *DIONYSIUS*.

DENYS, *St*, a famous town of France, in the de-
partment of Paris. Here is an ancient and magnifi-
cent church, in which were the tombs of many of the
French kings; and in the treasury, among other cu-
riofities, the swords of St Lewis and the Maid of Or-
leans, and the sceptre of Charlemagne. The abbey of
the late Benedictines, a magnificent piece of modern
architecture, has more the appearance of a palace than
a convent. In 1793, after the abolition of royalty,
the royal tombs in the church were all destroyed; and
the name of the town was changed to that of Fran-
ciade. It is seated on the river Crould, near the Seine,
five miles north of Paris. E. Long. 2. 26. N. Lat.
48. 56.

DEOBSTRUENTS, in *Pharmacy*, such medicines
as open obstructions. See *DETERGENT*.

DEODAND, in our customs, a thing given or for-
feited as it were to God, for the pacification of his
wrath in a case of misadventure, whereby a Christian
soul comes to a violent end without the fault of any
reasonable creature.

As, if a horse strike his keeper and kill him; if a
man, in driving a cart, falls so as the cart-wheel runs
over him, and presses him to death; if one be felling a
tree, and gives warning to the standers by to look to
themselves, yet a man is killed by the fall thereof; in
the first place, the horse, in the second, the cart-wheel,
cart, and horses; and in the third, the tree, is *Deo dan-
dus*, "to be given to God," that is, to the king, to be
distributed to the poor by his almoner, for expia-
tion of this dreadful event; though effected by irra-
tional, nay, senseless and deadly creatures.

Omnia quæ movent ad mortem sunt Deodanda:

What moves to death, or kills him dead,
Is *Deodand*, and forfeited.

This law seems to be an imitation of that in *Exodus*,
chap. xxi. "If an ox gore a man or a woman with
his horns, so as they die; the ox shall be stoned to
death, and his flesh not be eat; so shall his owner be
innocent."

Fleta says, the *Deodand* is to be sold, and the price
distributed to the poor, for the soul of the king, his
ancestors, and all faithful people departed this life.

DEPHLEGMATION, is an operation by which
the superabundant water of a body is taken from it;

and it is principally effected by evaporation or distilla-
tion. Dephlegmation is also called *concentration*, par-
ticularly when acids are the subject. See *CONCEN-
TRATION*.

DEPHLOGISTICATED, in *Chemistry*, any thing
deprived of the phlogiston supposed to be contained in
it.

DEPHLOGISTICATED *Air*, is the same with oxygen
gas of modern chemistry, and is an invisible elastic
fluid, of somewhat greater specific gravity than that of
the common atmosphere, and capable of supporting
animal life and flame for a much longer time than the
air we commonly breathe. See *OXYGEN, CHEMISTRY
Index*.

DEPILATORY MEDICINES, those applied in or-
der to take off the hair: such are lime and orpiment
known to be, but which ought to be used with great
caution.

DEPONENT, in Latin grammar, a term applied
to verbs which have active significations, but passive
terminations or conjugations, and want one of their
participles passive.

DEPONENT, in the *Law of Scotland*, a person who
makes a deposition. See *DEPOSITION*.

DEPOPULATION, the act of diminishing the
number of people in any country, whether by war,
disease, or political causes.

DEPORTATION, a sort of banishment used by
the Romans, whereby some island or other place was
allotted to a criminal for the place of his abode, with
a prohibition not to stir out of the same on pain of
death.

DEPOSIT, among civilians, something that is com-
mitted to the custody of a person, to be kept without
any reward, and to be returned again on demand.

DEPOSITARY, in *Law*, a person intrusted as
keeper or guardian of a deposit.

DEPOSITION, in *Law*, the testimony given in
court by a witness upon oath.

DEPOSITION is also used for the sequestrating or
depriving a person of his dignity and office.

This deposition only differs from abdication, in that
the latter is supposed voluntary, and the act of the dig-
nitary or officer himself; and the former of compul-
sion, being the act of a superior power, whose autho-
rity extends thereto. Some say the deposition, and
some the abdication of King James II.

Deposition does not differ from deprivation: we
say, indifferently, a deposed or deprived bishop, offi-
cial, &c.

Deposition differs from suspension, in that it abso-
lutely and for ever strips or divests a priest, &c. of all
dignity, office, &c. whereas suspension only prohibits,
or restrains, the exercise thereof.

Deposition only differs from degradation, in that
the latter is more formal, and attended with more
circumstances, than the former: but in effect and
substance they are the same; those additional circum-
stances being only matter of show, first set on foot out
of zeal and indignation, and kept up by custom, but
not warranted by the laws or canons. See *DEGRA-
DATION*.

DEPREICATION, in *Rhetoric*, a figure whereby
the orator invokes the aid and assistance of some one;
or

Dephlogis-
ticated
||
Depreca-
tion.

Deprecato-
ry
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Depth.

or prays for some great evil or punishment to befall him who speaks falsely, either himself or his adversary.

DEPRECATORY, or **DEPRECATIVE**, in *Theology*, a term applied to the manner of performing some ceremonies in the form of prayer.

The form of absolution is deprecative in the Greek church, being conceived in these terms, *May God absolve you*: whereas it is in the declarative form in the Latin church, and in some of the reformed churches, *I absolve you*.

DEPRESSION of the POLE. When a person sails or travels towards the equator, he is said to depress the pole; because as many degrees as he approaches nearer the equator, so many degrees will the pole be nearer the horizon. This phenomenon arises from the spherical figure of the earth.

DEPRESSION of a Star, or of the Sun, is its distance below the horizon; and is measured by an arc of a vertical circle, intercepted between the horizon and the place of the star.

DEPRESSION of the Visible Horizon, or Dip of the Horizon, denotes its sinking or dipping below the true horizontal plane, by the observer's eye being raised above the surface of the sea; in consequence of which, the observed altitude of an object is by so much too great.

DEPRESSOR, or **DEPRIMENS**, in *Anatomy*, a name applied to several muscles, because they depress the parts they are fastened to.

DEPRIVATION, in the common law, the act of bereaving, divesting, or taking away a spiritual promotion or dignity: as when a bishop, vicar, prebend, or the like, is deposed or deprived of his preferment, for some matter, or fault, in fact, or in law. See **DEPOSITION**.

Deprivation is of two kinds; *à beneficio, et ab officio*.

DEPRIVATION à beneficio is, when for some great crime a minister is wholly and for ever deprived of his living or preferment; which differs from suspension, in that the latter is only temporary.

DEPRIVATION ab officio is, when a minister is for ever deprived of his order; which is the same, in reality, with what we otherwise call *deposition* and *degradation*; and is usually for some heinous crime deserving death, and is performed by the bishop in a solemn manner. See **DEGRADATION**.

DEPTFORD, a town of Kent in England, considerable for its fine docks, and for the king's-yard and storehouses. It was anciently called West Greenwich. It is divided into Upper and Lower Deptford, and has two parish churches. Here is an hospital, incorporated by Henry VIII. called Trinity house of Deptford Strond. The brethren of the Trinity House hold their corporation by this hospital, and are obliged, at certain times, to meet here for business. It contains 21 houses: a more modern structure, and a finer one, called Trinity Hospital, contains 38. Both these are for decayed pilots, or masters of ships, or their widows, who have a handsome monthly allowance. Deptford is four miles east of London. E. Lon. o. 4. N. Lat. 51. 30.

DEPTH, the measure of any thing from the surface downwards.

Measuring of DEPTHS by the Barometer, depends on the same principles on which heights are measured by

the same instrument. The mensuration of depths being chiefly applied to mines, is still more precarious than the mensuration of heights, on account of the various kinds of vapours with which these subterraneous regions are filled. But for a particular account of these difficulties, with the best methods of obviating them, see **BAROMETER** and **MINES**.

DEPTH of a Squadron, or Battalion, is the number of men in a file; which in a squadron is three, and in a battalion generally six. See **SQUADRON**, **FILE**, &c.

We say, the battalion was drawn up six deep; the enemy's horse was drawn up five deep.

DEPURATION, is the freeing of any fluid from its heterogeneous matter or feculence. It is of three kinds: 1. Decantation; which is performed by letting the liquor to be depurated stand for some time in a pretty deep vessel, till the gross sediment has fallen to the bottom; after which the clear fluid is poured off. 2. Despumation; which is performed by means of the whites of eggs, or other viscid matter, and is also called **CLARIFICATION**. 3. Filtration; which is effected by passing the fluid through cloth or porous paper.

DEPURATORY FEVER, a name given by Sydenham to a fever which prevailed much in the years 1661, 1662, 1663, and 1664. He called it depuratory, because he supposed that nature regulated all the symptoms in such a manner, as to fit the febrile matter, prepared by proper concoction, for expulsion in a certain time, either by a copious sweat or a freer perspiration.

DEPUTATION, a mission of select persons, out of a company or body, to a prince or assembly, to treat of matters in their name.

DEPUTY, a person sent upon some business by some community.

DEPUTY is also one that exercises an office in another's right; and the forfeiture or misdemeanour of such deputy shall cause the person whom he represents to lose his office.

DEPUTATUS, among the ancients, a name applied to persons employed in making armour; and likewise to brisk active people, whose business was to take care of the wounded in engagements, and carry them off the field.

DER, a syllable frequently prefixed to the names of places in England. It is said to signify that such were formerly places where wild beasts herded together, so called from the Saxon, *deop, fera*, unless the situation was near some river.

DERBEND, a strong town of Asia, in Persia, said to have been founded by Alexander the Great. The walls are built with stones as hard as marble; and near it are the remains of a wall which reached from the Caspian to the Black sea. It is seated near the Caspian sea, at the foot of Mount Caucasus. E. Long. 50. o. N. Lat. 42. 8.

DERBY, the capital of a county of the same name in England. It is thought to have received its name for being formerly a park or shelter for deer; and what makes this supposition more probable is, that the arms of the town consist of a buck couchant in a park. It is very ancient, having been a royal borough in the time of Edward the Confessor. At present it is a neat town, very populous, and sends two members to parliament.

Depth
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Derby.

Derbyshire
||
Derelict.

liament. In digging for foundations of houses, human bones of a monstrous size have sometimes been found. The trade consists in wool, corn, malt, and ale, of which considerable quantities are sent to London. Here also is that curious machine for throwing silk, the model of which Sir Thomas Lombe, at the hazard of his life, brought from Italy. Before that time, the English merchants used to purchase thrown silks of the Italians for ready money. But by the help of this wonderful machine, one hand mill will twist as much silk as 50 people could do without it. It works 73,726 yards of silk every time the water-wheel goes round, which is thrice in a minute. The house in which it is contained is five or six stories high, and half a quarter of a mile in length. When Sir Thomas's patent expired in 1732, the parliament were so sensible of the value and importance of the machine, that they granted him a farther recompense of 14,000*l.* for the hazard and expence he had incurred in introducing and erecting it, upon condition he should allow an exact model of it to be taken. This model is deposited in the Tower of London, in order to prevent so curious and important an art from being lost. The town of Derby is watered by a river and a brook; the latter of which has nine bridges over it, the former only one. Derby gives title of earl to the noble family of Stanley, being the second earldom in England. W. Long. 1. 45. N. Lat. 52. 57.

DERBYSHIRE, a county of England, bounded on the east by Nottinghamshire, and a part of Leicestershire, which last bounds it also on the south. On the west it is bounded by Staffordshire, and part of Cheshire; and on the north by Yorkshire. It is near 40 miles in length from south to north; about 30 in breadth on the north side, but on the south no more than six.—The air is pleasant and healthful, especially on the east side; but on the west, about the Peak, it is sharper and more subject to wind and rain. The soil is very different in different parts of the country. In the east and south parts it is very fruitful in all kinds of grain; but in the west, beyond the Derwent, it is barren and mountainous, producing nothing but a little oats. There is, however, plenty of grass in the valleys, which afford pasture to a great number of sheep. This part of the county is called the *Peak*, from a Saxon word signifying "an eminence." Its mountains are very bleak, high, and barren; but extremely profitable to the inhabitants. They yield great quantities of the best lead, antimony, iron, scythe-stones, grind-stones, marble, alabaster, a coarse sort of crystal, azure, spar, and pit-coal. In these mountains are two remarkable caverns, named *Pool's Hole*, and *Elden-Hole*; for a description of which, see these articles.

DEREHAM, a town of Norfolk in England, situated in E. Long. 1. 0. N. Lat. 52. 40. It is pretty large, and the market is noted for woollen yarn.

DERELICTS (from *de*, and *relinquo*, "I leave"), in the civil law, are such goods as are wilfully thrown away, or relinquished by the owner.

DERELICT is also applied to such lands as the sea receding from leaves dry, and fit for cultivation. If they are left by a gradual recess of the sea, they are adjudged to belong to the owner of the adjoining lands; but when an island is formed in the sea, or a

large quantity of new land appears, such derelict lands belong to the king.

DERHAM, DR WILLIAM, a very celebrated English philosopher and divine, born in 1657. In 1682, he was presented to the vicarage of Wargrave in Berkshire; and in 1689, to the valuable rectory of Upminster in Essex; which latter lying at a convenient distance from London, afforded him an opportunity of conversing and corresponding with the greatest virtuosos of the nation. Applying himself there with great eagerness to natural and experimental philosophy, he soon became a distinguished member of the Royal Society, whose Philosophical Transactions contain a great variety of curious and valuable pieces, the fruits of his laudable industry. In his younger years he published his *Artificial Clockmaker*, which has been often printed: and in 1711, 1712, and 1714, he preached those sermons at Boyle's lecture, which he afterwards digested under the well known titles of *Physico-Theology* and *Astro-Theology*, and enriched with valuable notes and copper-plates. The last thing he published of his own composition was *Christo-Theology*, a demonstration of the divine authority of the Christian religion, being the substance of a sermon preached at Bath in 1729. This great good man, after spending his life in the most agreeable as well as improving study of nature, died at Upminster in 1735: and besides many other works, left a valuable collection of curiosities, particularly specimens of birds and insects of this island.—It may be necessary just to observe, that Dr Derham was very well skilled in medical as well as in physical knowledge; and was constantly a physician to the bodies as well as the souls of his parishioners.

DERIVATION, in *Medicine*, is when a humour which cannot conveniently be evacuated at the part affected, is attracted from thence, and discharged elsewhere; thus a blister is applied to the neck to draw away the humour from the eyes.

DERIVATION, in *Grammar*, the affinity one word has with another, by having been originally formed from it. See DERIVATIVE.

DERIVATIVE, in *Grammar*, a word which takes its origin from another word, called its *primitive*.—Such is the word derivative itself, which takes its origin from the primitive *rivus*, a rivulet or channel, out of which lesser streams are drawn; and thus *manhood*, *deity*, *lawyer*, &c. are derived from *man*, *deus*, *law*, &c.

DERMESTES, a genus of insects belonging to the order of coleoptera. See ENTOMOLOGY *Index*.

DERNIER RESORT. See RESORT.

DEROGATION, an act contrary to a preceding one, and which annuls, destroys, and revokes it, either in whole or in part.

DEROGATORY, a clause importing derogation. A derogatory clause in a testament, is a certain sentence, cipher, or secret character, which the testator inserts in his will, and of which he reserves the knowledge to himself alone, adding a condition, that no will he may make hereafter is to be reckoned valid, if this derogatory clause is not inserted expressly and word for word. It is a precaution invented by lawyers against latter-wills extorted by violence, or obtained by suggestion.

Derham
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Derogatory.

Derp
||
Dervis.

DERP, a town of Livonia, and capital of a palatinate of the same name, with a bishop's see, and an university. It is subject to the Russians, and lies near the river Ambeck. E. Long. 31. 55. N. Lat. 30. 40.

DETONA, DERTON, or *Deribon*, in *Ancient Geography*, a colony of the Cispadana; called *Julia Augusta* on inscriptions and coins; midway between Genoa and Placentia, and situated to the east of the Tanarus in Liguria. Now Tortona, a city of Milan. E. Long. 9. 12. N. Lat. 45.

DETONA, in *Ancient Geography*, the capital of the Hercaones, in Tarraconensis, or the Hither Spain: a municipium and colony; furnished *Julia Ilergavonia* (Coins). *Dertofani*, the people. Now Tortosa, in Catalonia, on the Ebro. E. Long. 15. N. Lat. 40. 45.

DERVENTIO, in *Ancient Geography*, a river of the Brigantes in Britain. Now the Darwent, in the east of Yorkshire, falling into the Ouse. Also a town of the Brigantes on the same river. Now called *Auldby*, seven miles from York, to the north-east (Camden).

DERVIS, or DERVICH, a name given to a sort of monks among the Turks, who lead a very austere life, and profess extreme poverty, though they are allowed to marry. The word is originally Persian, *دردی*, signifying a "beggar," or "person who has nothing;" and because the religious, and particularly the followers of Mevelava, profess not to possess any thing, they call both the religious in general, and the Mevelavites in particular, *Dervises* or *Derviches*.

The dervises, called also *Mevelavites*, are a Mahometan order of religious; the chief or founder whereof was one Mevelava. They are now very numerous. Their chief monastery is that near Cognia in Natolia, where the general makes his residence, and where all the assemblies of the order are held; the other houses being all dependent on this, by a privilege granted to this monastery under Ottoman I.

The dervises affect a great deal of modesty, patience, humility, and charity. They always go bare-legged and open-breasted, and frequently burn themselves with hot irons, to inure themselves to patience. They always fast on Wednesdays, eating nothing on those days till after sunset. Tuesdays and Fridays they hold meetings, at which the superior of the house presides. One of them plays all the while on a flute, and the rest dance, turning their bodies round and round with the greatest swiftness imaginable. Long custom to this exercise from their youth has brought them to such a habitude, that it does not discompose them at all. This practice they observe with great strictness, in memory of Mevelava their patriarch's turning miraculously round, as they pretend, for the space of four days, without any food or refreshment; his companion Hamsa playing all the while on the flute; after which he fell into an ecstasy, and therein received wonderful revelations for the establishment of his order. They believe the flute an instrument consecrated by Jacob and the shepherds of the Old Testament, because they sang the praises of God upon them. They profess poverty, chastity, and obedience, and really observe them while they remain dervises: but if they choose to go out and marry, they are always allowed.

The generality of dervises are mountebanks: some apply themselves to legerdemain, postures, &c. to amuse

the people; others give in to sorcery and magic: but all of them, contrary to Mahomet's precept, are said to drink wine, brandy, and other strong liquors, to give them the degree of gaiety their order requires.

Beside their great saint Mevelava, there are particular saints honoured in some particular monasteries: as Kiderele, greatly revered in the monasteries of Egypt, and held by some to be St George; and by others, with more probability, the prophet Elias.

The dervises are great travellers; and, under pretence of preaching, and propagating their faith, are continually passing from one place to another: on which account they have been frequently used as spies.

There are also dervises in Persia, called in that country *Abdals*, q. d. *servants of God*. They lead a very penurious, austere life, and preach the Alcoran in the streets, coffee-houses, and wherever they can meet with auditors. The Persian dervises retail little but fables to the people, and are in the utmost contempt among the men of sense and letters.

There are in Egypt two or three kinds; those that are in convents, are in a manner of the religious order, and live retired; though there are of these some who travel and return again to their convents. Some take this character, and yet live with their families, and exercise their trades; of this kind are the dancing dervises at Damascus, who go once or twice a-week to a little uninhabited convent, and perform their extraordinary exercises; these also seem to be a good people: but there is a third sort of them who travel about the country, and beg, or rather oblige people to give, for whenever they found their horn something must be given them. The people of these orders, in Egypt, wear an octagonal badge, of a greenish white alabafter, at their girdles, and a high stiff cap without any thing round it.

DESAGUILIERS, JOHN THEOPHILUS, who introduced the practice of reading public lectures in experimental philosophy in the metropolis, and who made several improvements in mechanics; was the son of the reverend John Desaguliers, a French Protestant refugee, and was born at Rochelle in 1683. His father brought him to England an infant; and at a proper age placed him at Christ-Church College, Oxford; where he succeeded Dr Keil in reading lectures on experimental philosophy at Hart-Hall. The magnificent duke of Chandos made Dr Desaguliers his chaplain, and presented him to the living of Edgeware, near his seat at Cannons: and he was afterwards chaplain to Frederic prince of Wales. He read lectures with great success to the time of his death in 1749. He communicated many curious papers printed in the *Philosophical Transactions*; published a valuable *Course of Experimental Philosophy*, in 2 vols 4to: and gave an edition of *Gregory's Elements of Catoptrics and Dioptrics*, with an Appendix on reflecting telescopes, 8vo. He was a member of the Royal Society, and of several foreign academies.

DESART, a large extent of country entirely barren, and producing nothing. In this sense some are sandy deserts; as those of Lop, Xamo, Arabia, and several others in Asia; in Africa, those of Libya and Zara: others are stony, as the desert of Pharan in Arabia Petrea.

Dervis
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Desart.

Desart
||
Descent.

The *DESART*, properly so called, is that part of Arabia, south of the Holy Land, where the children of Israel wandered forty years.

DESCANT, in *Music*, the art of composing in several parts. See *COMPOSITION*.

Descent is three-fold, viz. plain, figurative, and double.

Plain DESCANT is the ground-work and foundation of all musical compositions, consisting altogether in the orderly placing of many concords, answering to simple counterpoint. See *COUNTERPOINT*.

Figurative or *Florid DESCANT*, is that part of an air of music wherein some discords are concerned, as well, though not so much, as concords. This may be termed the ornamental and rhetorical part of music, in regard that there are introduced all the varieties of points, syncopes, diversities of measures, and whatever is capable of adorning the composition.

DESCANT Double, is when the parts are so contrived, that the treble, or any high part, may be made the bass; and, on the contrary, the bass the treble.

DESCARTES. See *CARTES*.

DESCENDANT. The issue of a common parent, in *infinitum*, are called his descendants. See the article *DESCENT*.

DESCENSION, in *Astronomy*, is either right or oblique.

Right DESCENSION, is an arch of the equinoctial, intercepted between the next equinoctial point and the intersection of the meridian, passing through the centre of the object, at its setting, in a right sphere.

Oblique DESCENSION, an arch of the equinoctial, intercepted between the next equinoctial point and the horizon, passing through the centre of the object, at its setting, in an oblique sphere.

DESCENT, in general, is the tendency of a body from a higher to a lower place; thus all bodies, unless otherwise determined by a force superior to their gravity, descend towards the centre of the earth. See *GRAVITY* and *MECHANICS*.

DESCENT, or *Hereditary Succession*, in *Law*, is the title whereby a man, on the death of his ancestor, acquires his estate by right of representation, as his heir at law. An heir, therefore, is he upon whom the law casts the estate immediately on the death of the ancestor: and an estate so descending to the heir is in law called the *inheritance*.

Descent is either *lineal* or *collateral*. The former is that conveyed down in a right line from the grandfather to the father, and from the father to the son, and from the son to the grandson. The latter is that springing out of the side of the line or blood; as from a man to his brother, nephew or the like.

The doctrine of descents, or law of inheritances in fee-simple, is a point of the highest importance: (See the article *FEEL*). All the rules relating to purchases, whereby the legal course of descents is broken and altered, perpetually refer to this settled law of inheritance, as a *datum* or first principle universally known, and upon which their subsequent limitations are to work. Thus a gift in tail, or to a man and the heirs of his body, is a limitation that cannot be perfectly understood without a previous knowledge of the law of descents in fee-simple. One may well perceive, that this is an estate confined in its descent to such heirs only of the donee

as have sprung or shall spring from his body: but who those heirs are, whether all his children both male and female, or the male only, and (among the males) whether the eldest, youngest, or other son alone, or all the sons together, shall be his heir; this is a point that we must refer back to the standing law of descents in fee-simple to be informed of.

And as this depends not a little on the nature of kindred, and the several degrees of consanguinity, it will be necessary to refer the reader to the article *CONSANGUINITY*, where the true notion of this kindred or alliance in blood is particularly stated.

We shall here exhibit a series of rules or canons of inheritance, with illustrations, according to which, by the law of England, estates are transmitted from the ancestor to the heir.

1. "Inheritances shall lineally descend to the issue of the person last actually seized in *infinitum*, but shall never lineally ascend.

To understand both this and the subsequent rules, it must be observed, that by law no inheritance can vest, nor can any person be the actual complete heir of another, till the ancestor is previously dead. *Nemo est hæres viventis*. Before that time, the person who is next in the line of succession is called *heir apparent*, or *heir presumptive*. Heirs apparent are such whose right of inheritance is indefeasible, provided they outlive the ancestor; as the eldest son or his issue, who must, by the course of the common law, be heirs to the father whenever he happens to die. Heirs presumptive are such, who, if the ancestor should die immediately, would in the present circumstances of things be his heirs; but whose right of inheritance may be defeated by the contingency of some nearer heir being born: as a brother or nephew, whose presumptive succession may be destroyed by the birth of a child; or a daughter, whose present hopes may be hereafter cut off by the birth of a son. Nay, even if the estate hath descended, by the death of the owner, to such a brother, or nephew, or daughter; in the former cases, the estate shall be divested and taken away by the birth of a posthumous child; and, in the latter, it shall also be totally divested by the birth of a posthumous son.

We must also remember, that no person can be properly such an ancestor as that an inheritance in lands or tenements can be derived from him, unless he hath had actual seisin of such lands, either by his own entry, or by the possession of his own or his ancestor's lessee for years, or by receiving rent from a lessee of the freehold: or unless he hath what is equivalent to corporal seisin in hereditaments that are incorporeal; such as the receipt of rent, a presentation to the church in case of an advowson, and the like. But he shall not be accounted an ancestor who hath had only a bare right or title to enter or be otherwise seized. And therefore all the cases which will be mentioned in the present article, are upon the supposition that the deceased (whose inheritance is now claimed) was the last person actually seized thereof. For the law requires this notoriety of possession, as evidence that the ancestor had that property in himself, which is now to be transmitted to his heir. Which notoriety hath succeeded in the place of the ancient feudal investiture, whereby, while feuds were precarious, the vassal on the descent of lands was formerly admitted in the lord's court

Descent.

Blackst.
Comments.

Descent. (as is still the practice in Scotland); and therefore received his seisin, in the nature of a renewal of his ancestor's grant, in the presence of the feudal peers: till at length, when the right of succession became indefeasible, an entry on any part of the lands within the county (which if disputed was afterwards to be tried by those peers), or other notorious possession, was admitted as equivalent to the formal grant of seisin, and made the tenant capable of transmitting his estate by descent. The seisin therefore of any person, thus understood, makes him the root or stock from which all future inheritance by right of blood must be derived, which is very briefly expressed in this maxim, *seisina facit stipitem.*

When therefore a person dies so seised, the inheritance first goes to his issue: as if there be Geoffrey, John, and Matthew, grandfather, father, and son; and John purchases lands and dies; his son Matthew shall succeed him as heir, and not the grandfather Geoffrey; to whom the land shall never ascend, but shall rather escheat to the lord.

2. "The male issue shall be admitted before the female."—Thus sons shall be admitted before daughters; or, as our male lawgivers have somewhat uncomplaisantly expressed it, the worthiest of blood shall be preferred. As if John Stiles had two sons, Matthew and Gilbert, and two daughters, Margaret and Charlotte, and dies; first Matthew, and (in case of his death without issue) then Gilbert shall be admitted to the succession in preference to both the daughters.

3. "Where there are two or more males in equal degree, the eldest only shall inherit; but the females all together." As if a man hath two sons, Matthew and Gilbert, and two daughters, Margaret and Charlotte, and dies; Matthew his eldest son shall alone succeed to his estate, in exclusion of Gilbert the second son and both the daughters; but if both the sons die without issue before the father, the daughters Margaret and Charlotte shall both inherit the estate as coparceners.

4. "The lineal descendants, *in infinitum*, of any person deceased, shall represent their ancestor; that is, shall stand in the same place as the person himself would have done had he been living." Thus the child, grand-child, or great-grand-child (either male or female), of the eldest son, succeeds before the younger son, and so *in infinitum*. And these representatives shall take neither more nor less, but just so much as their principals would have done. As if there be two sisters, Margaret and Charlotte; and Margaret dies, leaving six daughters; and then John Stiles the father of the two sisters dies without other issue; these six daughters shall take among them exactly the same as their mother Margaret would have done, had she been living; that is, a moiety of the lands of John Stiles in coparcenary: so that, upon partition made, if the land be divided into twelve parts, thereof Charlotte the surviving sister shall have six, and her six nieces, the daughters of Margaret, one a-piece.

5. "On failure of lineal descendants, or issue of the person last seised, the inheritance shall descend to the blood of the first purchaser; subject to the three preceding rules." Thus, if Geoffrey Stiles purchases land, and it descends to John Stiles his son, and John dies seised thereof without issue; whoever succeeds to

this inheritance must be of the blood of Geoffrey, the first purchaser of this family. The first purchaser, *perquisitor*, is he who first acquired the estate to his family, whether the same was transferred to him by sale, or by gift, or by any other method, except only that of descent.

6. "The collateral heir of the person last seised must be his next collateral kinsman of the whole blood."

First, he must be his next collateral kinsman either personally or *jure representationis*; which proximity is reckoned according to the canonical degrees of consanguinity: See CONSANGUINITY. Therefore the brother being in the first degree, he and his descendants shall exclude the uncle and his issue, who is only in the second.—Thus, if John Stiles dies without issue, his estate shall descend to Francis his brother, who is lineally descended from Geoffrey Stiles, his next immediate ancestor or father. On failure of brethren or sisters and their issue, it shall descend to the uncle of John Stiles, the lineal descendant of his grandfather George; and so on *in infinitum*.

But, secondly, the heir need not be the nearest kinsman absolutely, but only *sub modo*; that is, he must be the nearest kinsman of the *whole* blood; for if there be a much nearer kinsman of the *half* blood, a distant kinsman of the whole blood shall be admitted, and the other entirely excluded. A kinsman of the whole blood is he that is derived, not only from the same ancestor, but from the same couple of ancestors. For as every man's own blood is compounded of the bloods of his respective ancestors, he only is properly of the whole or entire blood with another who hath (so far as the distance of degrees will permit) all the same ingredients in the composition of his blood that the other hath. Thus, the blood of John Stiles being composed of those of Geoffrey Stiles his father, and Lucy Baker his mother, therefore his brother Francis, being descended from both the same parents, hath entirely the same blood with John Stiles; or he is his brother of the whole blood. But if, after the death of Geoffrey, Lucy Baker the mother marries a second husband, Lewis Gay, and hath issue by him: the blood of this issue, being compounded of the blood of Lucy Baker (it is true) on the one part, but that of Lewis Gay (instead of Geoffrey Stiles) on the other part, it hath therefore only half the same ingredients with that of John Stiles; so that he is only his brother of the half blood, and for that reason they shall never inherit to each other. So also, if the father has two sons, A and B, by different venturers or wives; now these two brethren are not brethren of the whole blood, and therefore shall never inherit to each other, but the estate shall rather escheat to the lord. Nay, even if the father dies, and his lands descend to his eldest son A, who enters thereon, and dies seised without issue; still B shall not be heir to this estate, because he is only of the half blood to A, the person last seised: but had A died without entry, then B might have inherited; not as heir to A his half-brother, but as heir to their common father, who was the person last actually seised.

The rule then, together with its illustration, amounts to this, That in order to keep the estate of John Stiles as nearly as possible in the line of his purchasing ancestor, it must descend to the issue of the nearest couple of ancestors that have left descendants behind them; because

DECK.

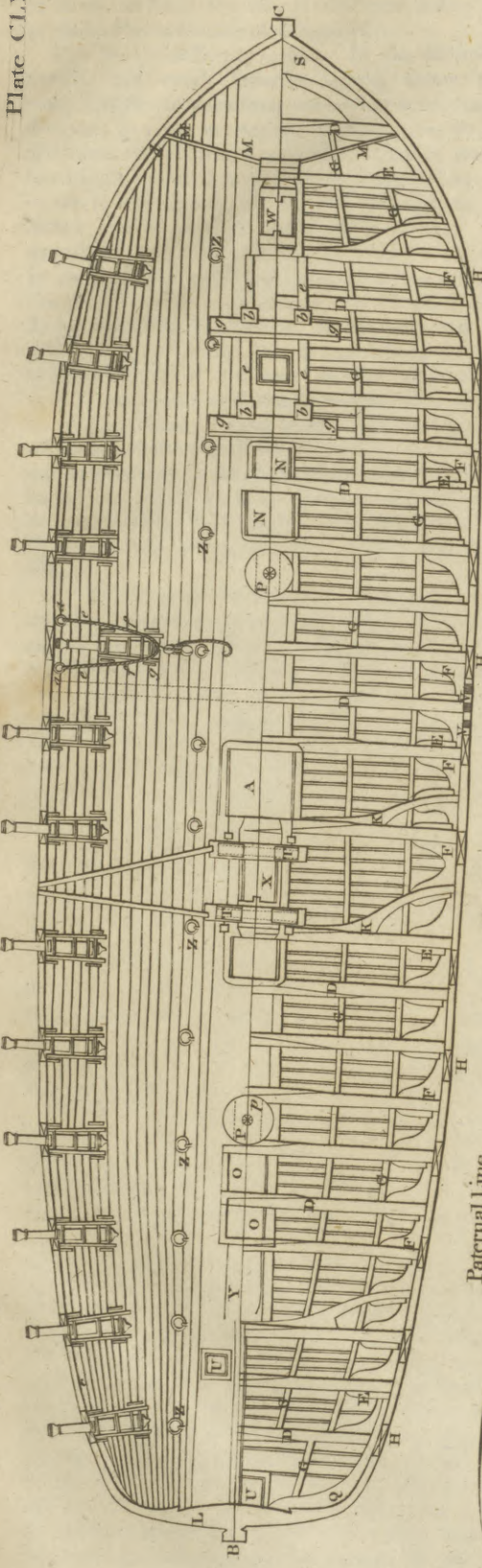
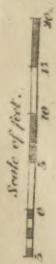
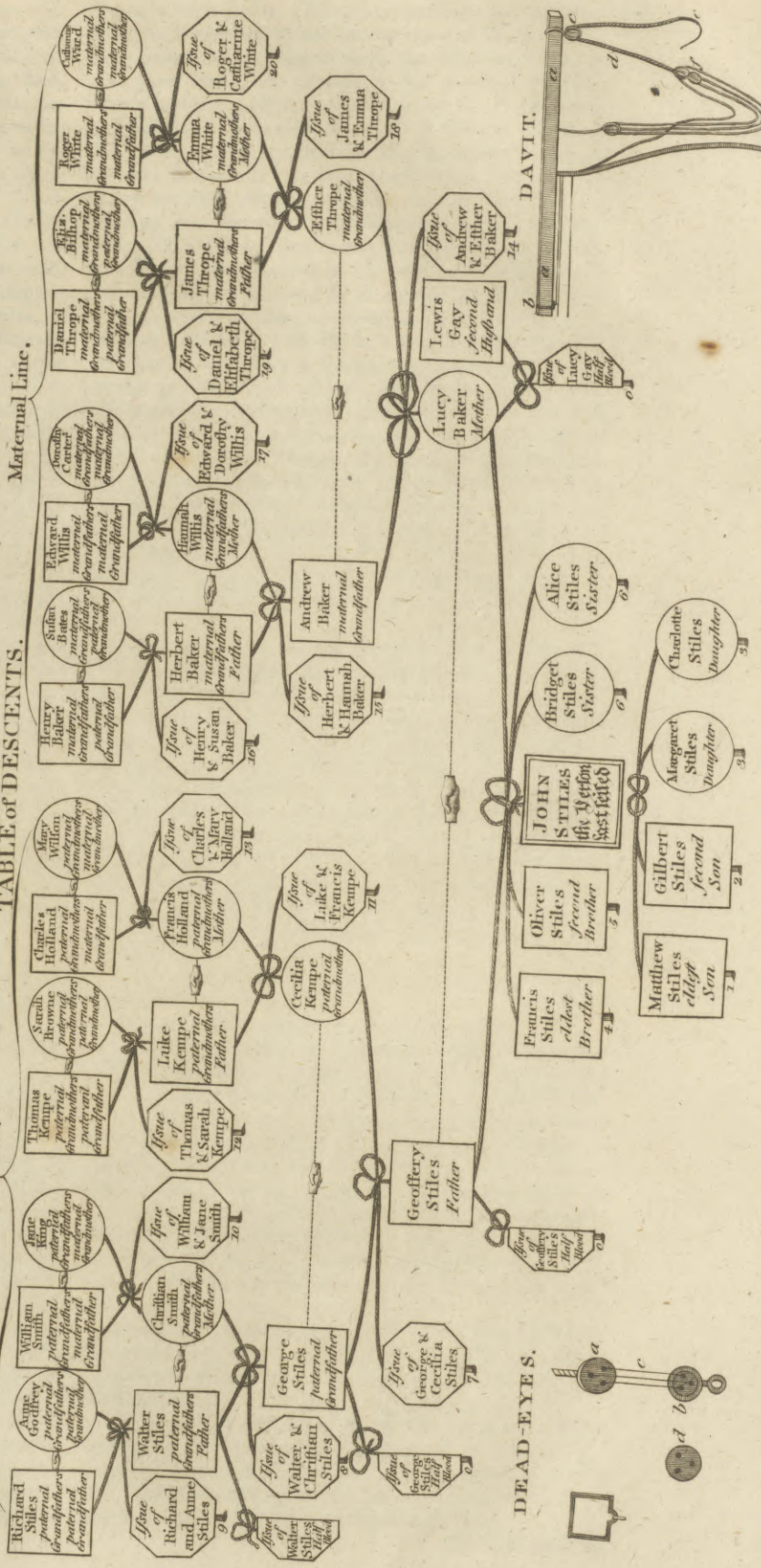


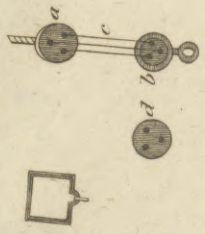
TABLE OF DESCENTS.

Paternal Line.

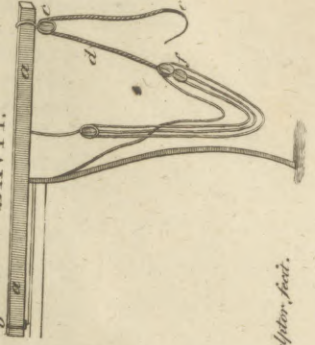
Maternal Line.



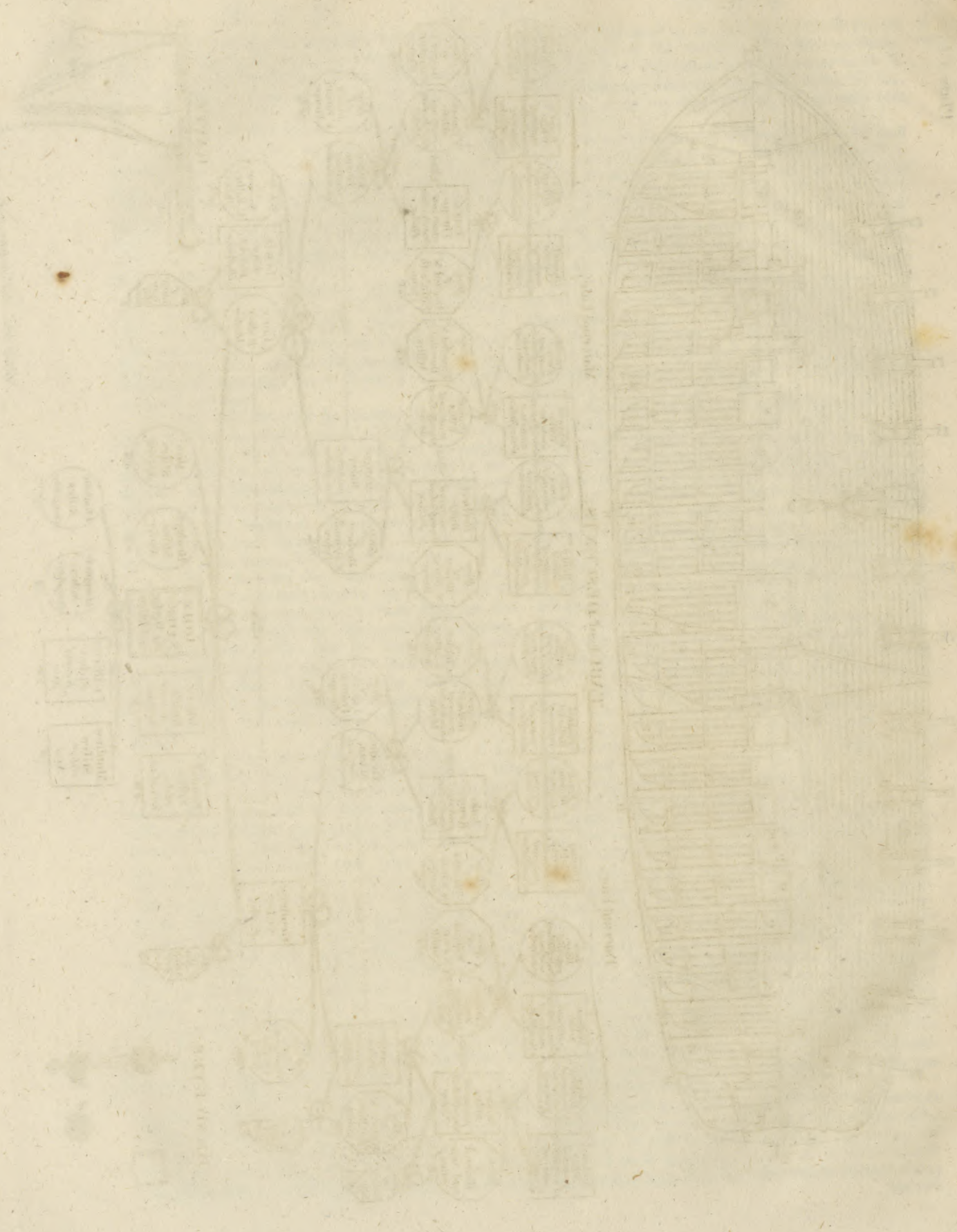
DEAD-EYES.



DAVIT.



Abel Dorr, Mar. Surveyor, fecit.



110

111

Descent. because the descendants of one ancestor only are not so likely to be in the line of that purchasing ancestor as those who are descended from two.

But here a difficulty arises. In the second, third, fourth, and every superior degree, every man has many couples of ancestors, increasing according to the distances in a geometrical progression upwards, the descendants of all which respective couples are (representatively) related to him in the same degree. Thus, in the second degree, the issue of George and Cecilia Stiles and of Andrew and Esther Baker, the two grandfathers and grandmothers of John Stiles, are each in the same degree of propinquity; in the third degree, the respective issues of Walter and Christian Stiles, of Luke and Frances Kempe, of Herbert and Hannah Baker, and of James and Emma Thorpe, are (upon the extinction of the two inferior degrees) all equally entitled to call themselves the next kindred of the whole blood to John Stiles. To which therefore of these ancestors must we first resort, in order to find out descendants to be preferably called to the inheritance? In answer to this, and to avoid the confusion and uncertainty that might arise between the several stocks wherein the purchasing ancestor may be sought for,—

7. The seventh and last rule or canon is, “That in collateral inheritances the male stocks shall be preferred to the female (that is, kindred derived from the blood of the male ancestors shall be admitted before those from the blood of the female;)—unless where the lands have in fact descended from a female.”—Thus the relations on the father’s side are admitted *in infinitum*, before those on the mother’s side are admitted at all; and the relations of the father’s father, before those of the father’s mother; and so on.

For the original and progress of the above canons, the reasons upon which they are founded, and their agreement with the laws of other nations, the curious reader may consult *Blackstone’s Commentaries*, vol. ii. p. 208—237.

We shall conclude with exemplifying the rules themselves by a short sketch of the manner in which we must search for the heir of a person, as John Stiles, who dies seised of land which he acquired, and which therefore he held as a feud of indefinite antiquity. See the *Table of DESCENTS* on Plate CLXIX.

In the first place succeeds the eldest son, Matthew Stiles, or his issue, (N^o 1.):—If his line be extinct, then Gilbert Stiles and the other sons respectively, in order of birth, or their issue, (N^o 2.):—in default of these, all the daughters together, Margaret and Charlotte Stiles or their issue, (N^o 3.):—On the failure of the descendants of John Stiles himself, the issue of Geoffrey and Lucy Stiles, his parents, is called in; viz. first, Francis Stiles, the eldest brother of the whole blood, or his issue, (N^o 4.):—then Oliver Stiles, and the other whole brothers respectively, in order of birth, or their issue, (N^o 5.):—then the sisters of the whole blood altogether, Bridget and Alice Stiles, or their issue, (N^o 6.).—In defect of these, the issue of George and Cecilia Stiles, his father’s parents; respect being still had to their age and sex, (N^o 7.):—then the issue of Walter and Christian Stiles, the parents of his paternal grandfather, (N^o 8.):—then the issue of Richard and Anne Stiles, the parents of his paternal

grandfather’s father, (N^o 9.):—and so on in the paternal grandfather’s paternal line, or blood of Walter Stiles, *in infinitum*. In defect of these the issue of William and Jane Smith, the parents of his paternal grandfather’s mother, (N^o 10.):—and so on in the paternal grandfather’s maternal line, or blood of Christian Smith, *in infinitum*; till both the immediate bloods of George Stiles, the paternal grandfather, are spent.—Then we must resort to the issue of Luke and Frances Kempe, the parents of John Stiles’s paternal grandmother, (N^o 11.):—then to the issue of Thomas and Sarah Kempe, the parents of his paternal grandmother’s father, (N^o 12.):—and so on in the paternal grandmother’s paternal line, or blood of Luke Kempe, *in infinitum*. In default of which, we must call in the issue of Charles and Mary Holland, the parents of his paternal grandmother’s mother, (N^o 13.): and so on in the paternal grandmother’s maternal line, or blood of Frances Holland, *in infinitum*; till both the immediate bloods of Cecilia Kempe, the paternal grandmother, are also spent.—Whereby the paternal blood of John Stiles entirely failing, recourse must then and not before, be had to his maternal relations; or the blood of the Bakers, (N^o 14, 15, 16.), Willis’s (N^o 17.), Thorpe’s (N^o 18, 19.), and White’s (N^o 20.); in the same regular successive order as in the paternal line.

The student should bear in mind, that during this whole process, John Stiles is the person supposed to have been last actually seised in the estate. For if ever it comes to vest in any other person, as heir to John Stiles, a new order of succession must be observed upon the death of such heir; since he, by his own seisin, now becomes himself an ancestor, or *stipes*, and must be put in the place of John Stiles. The figures therefore denote the order in which the several classes would succeed to John Stiles, and not to each other; and before we search for an heir in any of the higher figures, (as N^o 8.) we must first be assured that all the lower classes from (N^o 1. to 7.) were extinct at John Stiles’s decease.

DESCENT, or *Succession*, in the *Law of Scotland*. See *LAW INDEX*.

DESCENT of the *Crown*. See *SUCCESSION*.

DESCENT of *Dignities*. A dignity differs from common inheritances, and goes not according to the rules of the common law: for it descends to the half-blood; and there is no coparcenership in it, but the eldest takes the whole. The dignity of peerage is personal, annexed to the blood; and so inseparable, that it cannot be transferred to any person, or surrendered even to the crown; it can move neither forward nor backward, but only downward to posterity; and nothing but corruption of blood, as if the ancestor be attainted of treason or felony, can hinder the descent to the right heir.

DESCENT, in genealogy, the order or succession of descendants in a line or family; or their distance from a common progenitor: Thus we say, one descent, two descents, &c.

DESCENT, in *Heraldry*, is used to express the coming down of any thing from above; as, a lion *en descent* is a lion with his head towards the base points, and his heels towards one of the corners of the chief, as if he were leaping down from some high place.

DESCHAMPE,

Deschamps
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Design.

DESCHAMPS, FRANCIS, a French poet, born in Champagne, was the author of a tragedy entitled *Cato of Utica*, and a history of the French theatre. He died at Paris in 1747.

DESCRIPTION, in literary composition, is such a strong and beautiful representation of a thing, as gives the reader a distinct view and satisfactory notion of it. See *NARRATION and Description*.

DESEADA, or **DESIDERARA**, one of the Caribbee islands subject to France, lying eastward of Guadaloupe.

DESERT, or **DESART**. See **DESART**.

DESERTER, in a military sense, a soldier who, by running away from his regiment or company, abandons the service.

A deserter is, by the articles of war, punishable by death; which, after conviction, is executed upon him at the head of the regiment he formerly belonged to, with his crime written on his breast.

DESERTION, in *Law*. See *LAW Index*.

DESHABILLE, a French term, naturalized of late. It properly signifies a night-gown, and other necessaries, made use of in dressing or undressing. Mr — is not to be spoken with, he is yet in his *deshabille*, i. e. undressed, or in his night-gown. The word is compounded of the primitive *de* and *s'habiller*, "to dress one's self."

DESHACHE', in *Heraldry*, is where a beast has its limbs separated from its body, so that they still remain on the escutcheon, with only a small separation from their natural places.

DESIDERATUM, is used to signify the desirable perfections in any art or science; thus, it is a desideratum with the blacksmith, to render iron fusible by a gentle heat, and yet preserve it hard enough for ordinary uses; with the glassmen and looking-glass maker, to render glass malleable; with the clock-maker, to bring pendulums to be useful where there are irregular motions, &c.

DESIGN, in a general sense, the plan, order, representation, or construction of a building, book, painting, &c. See **ARCHITECTURE**, **PAINTING**, **POETRY**, **ORATORY**, **HISTORY**.

DESIGN, in the manufactories, expresses the figures wherewith the workman enriches his stuff or silk, and which he copies after some painter or eminent draughtsman, as in diaper, damask, and other flowered silk and tapestry, and the like.

In undertaking of such kinds of figured stuffs, it is necessary, says Mons. Savary, that before the first stroke of the shuttle, the whole design be represented on the threads of the warp, we do not mean in colours, but with an infinite number of little packthreads, which, being disposed so as to raise the threads of the warp, let the workmen see, from time to time, what kind of silk is to be put in the eye of the shuttle for woof. This method of preparing the work is called *reading the design*, and *reading the figure*, which is performed in the following manner: A paper is provided, considerably broader than the stuff, and of a length proportionate to what is intended to be represented thereon. This they divide lengthwise by as many black lines as there are intended threads in the warp; and cross these lines by others drawn breadthwise, which, with the former, make little equal squares; on the paper thus

squared, the draughtsman designs his figures, and heightens them with colours as he sees fit. When the design is finished, a workman reads it, while another lays it on the simblot.

Design.

To read the design, is to tell the person who manages the loom the number of squares or threads comprised in the space he is reading, intimating at the same time, whether it is ground or figure. To put what is read on the simblot, is to fasten little strings to the several packthreads, which are to raise the threads named: and this they continue to do till the whole design is read.

Every piece being composed of several repetitions of the same design, when the whole design is drawn, the drawer, to re-begin the design afresh, has nothing to do but to raise the little strings, with slip-knots, to the top of the simblot, which he had let down to the bottom; this he is to repeat as often as is necessary till the whole be manufactured.

The ribbon-weavers have likewise a design, but far more simple than that now described. It is drawn on paper with lines and squares, representing the threads of the warp and woof. But instead of lines, whereof the figures of the former consist, these are constituted of points only, or dots, placed in certain of the little squares formed by the intersection of the lines. These points mark the threads of the warp that are to be raised, and the spaces left blank denote the threads that are to keep their situation; the rest is managed as in the former.

DESIGN is also used, in *Painting*, for the first idea of a large work, drawn roughly, and in little, with an intention to be executed and finished in large.

In this sense, it is the simple contour or outlines of the figures intended to be represented, or the lines that terminate and circumscribe them: such design is sometimes drawn in crayons or ink, without any shadows at all; sometimes it is hatched, that is, the shadows are expressed by sensible outlines, usually drawn across each other with the pen, crayon, or graver. Sometimes, again, the shadows are done with the crayon rubbed so as that there do not appear any lines; at other times, the grains or stroke of the crayon appear, as not being rubbed: sometimes the design is washed, that is, the shadows are done with a pencil in Indian ink, or some other liquor; and sometimes the design is coloured, that is, colours are laid on much like those intended for the grand work.

DESIGN, in *Music*, is justly defined by Rousseau to be the invention and the conduct of the subject, the disposition of every part, and the general order of the whole.

It is not sufficient to form beautiful airs, and a legitimate harmony; all these must be connected by a principal subject, to which all the parts of the work relate, and by which they become one. Thus unity ought to prevail in the air, in the movement, in the character, in the harmony, and in the modulation. All these must indispensably relate to one common idea which unites them. The greatest difficulty is, to reconcile the observation of those precepts with an elegant variety, which, if not introduced, renders the whole piece irksome and monotonous. Without question, the musician, as well as the poet and the painter, may risk every thing in favour of this delightful variety; if, under

Design
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Despot.

under the pretext of contrasting, they do not endeavour to cheat us with false appearances, and instead of pieces justly and happily planned, present us with a musical minced-meat, composed of little abortive fragments, and of characters so incompatible, that the whole assembled forms a heterogeneous monster.

*Non ut placidis coeant immitia, non ut
Serpentes avibus gementur, tigribus agni.*

Translated thus :

But not that nature should revers'd appear ;
Mix mild with fierce, and gentle with severe ;
Profane her laws to contradiction's height :
Tigers with lambs, with serpents birds unite.

It is therefore in a distribution formed with intelligence and taste, in a just proportion between all the parts, that the perfection of design consists ; and it is above all, in this point, that the immortal Pergoleso has shown his judgment and his taste, and has left so far behind him all his competitors. His *Stabat Mater*, his *Orfeo*, his *Serva Padrona*, are, in three different species of composition, three masterpieces of *design* equally perfect.

This idea of the general design of a work is likewise particularly applicable to every piece of which it consists : thus the composer plans an air, a duet, a chorus, &c. For this purpose, after having invented his subject, he distributes it, according to the rules of a legitimate modulation, into all the parts where it ought to be perceived, in such a proportion, that its impression may not be lost on the minds of the audience ; yet that it may never be reiterated in their ears, without the graces of novelty. The composer errs in designing who suffers his subject to be forgot ; he is still more culpable who pursues it till it becomes trite and tiresome.

DESIGNATION, the act of marking or indicating, and making a thing known. The designation of such an estate is made by the tenants, butments, and boundings. Among the Romans, there were designations of the consuls and other magistrates, some time before their election.

DESIGNATOR, a Roman officer, who assigned and marked each person his place and rank in public ceremonies, shows, processions, &c. The word is formed from the verb *designare*, "to design."

The designator was a kind of marshal, or master of the ceremonies, who regulated the seats, march, order, &c. There were designators at funeral solemnities, and at the games, theatre, and shows, who not only assigned every one his place, but also led him to it ; as appears from the prologue to the *Pœnulus* of Plautus. Much of the same nature were the *agonatbetæ* of the Greeks.

DESIGNING, the art of delineating or drawing the appearance of natural objects, by lines on a plane. To design, according to the rules of mathematics, makes the object of perspective. See *PERSPECTIVE*.

DESPOT, a term sometimes used for an absolute prince : (see next article). The word, in its first origin, signified the same with the Latin *berus*, and the English *master* : but in time it underwent the same fate on medals, as, among the Latins, Cæsar did with regard to Augustus : *BACIAEYC* answering to Augus-

tus, and *ΔΕCΠΟΤΗC*, *despotes*, to Cæsar. See *CÆSAR*.

Thus, Nicephorus having ordered his son Stauracius to be crowned, the son, out of respect, would only take the name *ΔΕCΠΟΤΗC*, leaving to his father that of *BACIAEYC*. For it is to be noted, that it was just about the time that the emperors began to cease to use Latin inscriptions. This delicacy, however, did not last long ; for the following emperors preferred the quality of *ΔΕCΠΟΤΗC* to that of *BACIAEYC*, particularly Constantine, Michael Ducas, Nicephorus Botaniates, Romanus Diogenes, the Comneni, and some others. In imitation of the princes, the princesses likewise assumed the title of *ΔΕCΠΟΙΝΑ*.

It was the emperor Alexius, surnamed the angel, that created the dignity of despot, and made it the first after that of emperor, above that of Augustus or Sebastocrator and Cæsar. See *AUGUST*.

The despots were usually the emperor's sons or sons-in-law, and their colleagues or copartners in the empire, as well as their presumptive heirs. The despots that were sons of the emperors had more privileges and authority than those that were only sons-in-law. Codin, p. 38. describes the habits and ornaments of the despot. See the notes of Father Goar on that author, Under the successors of Constantine the Great, the title *despot of Sparta* was given to the emperor's son or brother, who had the city of Sparta or Lacedemon by way of appanage.

DESPOT is at present a title of quality given to Wallachia, Servia, and some of the neighbouring countries.

DESPOTICAL, in general, denotes any thing that is uncontrouled and absolute ; but is particularly used for an arbitrary government, where the power of the prince is unlimited, and his will a law to his subjects ; such as those of Turkey, Persia, and most of the eastern governments ; and even those of Europe, if we except the republics, our own, and of late the French government.

DESPOUILLE, in *Heraldry*, the whole case, skin, or slough of a beast, with the head, feet, tail, and all appurtenances, so that being filled and stuffed it looks like the entire creature.

DESPREAUX. See *BOILLEAU*.

DESSAULT, PETER JOSEPH, a distinguished French surgeon, was born at Magny Vernois, a village of Franche Comté, in the year 1744. He was descended of parents of an humble rank in life. He received the early part of his education in a school of the Jesuits, and was destined for the church ; but his own inclination tended to the study of medicine, and in this he was at length indulged, and settled as an apprentice in the military hospital of Besfort. Here he acquired some knowledge of anatomy and surgery ; and having previously made considerable progress in mathematical studies, he applied this knowledge, after the example of Borelli and others, to the investigation of physiological subjects. He translated the work of Borelli, *De Motu Animalium*, and added notes and illustrations, in which, although he proceeded upon wrong principles, he discovered at a very early period strong proofs of his zeal and industry.

About his 20th year he went to Paris, where he enjoyed the best opportunities of storing his mind with the knowledge of surgery and anatomy, which he prosecuted

Despot
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Desault.

Desault. fecundated with the utmost ardour and success. He spent almost the whole of his time at the anatomical theatres and hospitals; but by this close attendance his health suffered greatly. He was seized with a cachectical disease, which confined him to bed for a twelvemonth; and he was indebted for his recovery to the vigour of his constitution, and the kind offices of a young friend who constantly watched the progress of his disorder. His health being re-established, neither his circumstances nor the activity of his mind would permit him to indulge in repose. He commenced teacher of anatomy in the winter of 1766, and was soon attended by 300 pupils, a great proportion of whom was older than himself. But this success excited the jealousy of the established teachers and professors, who exerted all the influence of authority to silence him; and although he was patronised and protected by some surgeons of great eminence, the opposition which he met with would have obliged him to renounce public teaching, had he not been permitted to go on by the expedient of adopting the name of another as a sanction. His reputation was now greatly extended; but still he declined private practice, till he was established in some distinguished public station. In the year 1776, he was admitted a member of the corporation of surgeons, and it would appear that his finances were at this time extremely limited, from the circumstance of his being indulged by that body in paying his fees when it should be convenient for himself. He successively filled the honourable stations in the corporation and academy of surgery, and in the year 1782, he was appointed surgeon-major to the hospital *De la Charité*.

Desault was now regarded as one of the first surgeons of Paris. He succeeded to the next vacancy at the Hotel Dieu; and after the death of Moreau, almost the whole surgical department of that hospital was intrusted to him. Here he instituted a clinical school of surgery, on a liberal and extensive plan, which attracted a great concourse of students, not only from every part of France, but also from foreign countries. An audience composed of 600 students frequently met to hear his instructions, and most of the surgeons of the French army derived their knowledge from his lectures.

The surgical practice of Desault was always distinguished for its efficacy and simplicity. Among the improvements which he introduced into surgery may be mentioned bandages for the retention of fractured limbs, the use of compressions in promoting the cure of ulcers, the use of ligature in umbilical hernia of children, the extraction of loose cartilages in joints, the use of bougies in schirrosities of the rectum, and that of elastic probes in contractions of the urethra. He also introduced essential improvements in the construction of various surgical instruments.

In the year 1791, he published a work entitled *Journal de Chirurgie*, the object of which was to record the most interesting cases which occurred in his clinical school, with the remarks which he made upon them in the course of his lectures. The editing of this work was intrusted to his pupils. But in the midst of his valuable labours he became obnoxious to some of the prevailing parties of that turbulent period, and in 1792 he was denounced to the popular sections in the cant language of the times, as an *egotist* or *indif-*

ferent. After being twice examined, he was seized while he was delivering a lecture, carried away from his theatre, and committed to the prison of the Luxembourg. But in three days he was liberated and permitted to resume all his functions. When the school of health was established, he was appointed clinical professor for external maladies; and it was through his means that the Evechè was converted into an hospital for surgical operations.

The horrid scenes which were exhibited in May 1795, made so deep an impression on his mind, from the apprehension of a renewal of the horrors which he had formerly experienced, that he was seized with a fever, accompanied with delirium; and this put an end to his life on the 1st of June, the same year, at the age of 51. He had attended the dauphin in the temple; and from the circumstance of his death having happened but a short time before that prince, an opinion was prevalent among the populace that he was poisoned, because he refused to do any thing against the dauphin's life. This story seems to have no foundation, but it affords a proof of the opinion held by the public of Desault's integrity. A pension was settled on his widow by the republic. Fame, and not emolument, had been always the object of his ambition; for he neglected many opportunities of acquiring wealth. Indifferent to all other pleasures and pursuits, Desault was solely and passionately attached to his profession. His temper was ardent, and sometimes rather violent; but his sentiments were always elevated and noble. The only work of which he is to be considered as the sole author, is entitled *Traité des Maladies chirurgicales, et des Operations qui leur conviennent*, in 2 vols 8vo.

DESSAW, a city of Upper Saxony, in Germany, situated on the river Elbe, 60 miles north-west of Dresden, and subject to the prince of Anhalt Dessau. E. Long. 12. 40. N. Lat. 51. 50.

DESSERT, or **DESERT**, a service of fruits and sweetmeats, usually served up last at table.

DESSICATIVE, or **DESICCATIVE**, in *Pharmacy*, an epithet applied to such topical medicines as dry up the humours flowing to a wound or ulcer.

DESTINIES, in *Mythology*. See **PARCÆ**.

DESTINY, among philosophers and divines. See

FATE.

DESTRUCTION, in general, an alteration of any thing from its natural state to one contrary to nature, whereby it is deemed the same with **CORRUPTION**.

A chemical destruction, or corruption, is nothing but a resolution of the whole naturally mixt body into its parts.

DESUDATION, in *Medicine*, a profuse and inordinate sweat, succeeded by an eruption of pustules, called *sudamina*, or *heat pimples*.

DESULTOR, in antiquity, a vaulter or leaper, who, leading one horse by the bridle, and riding another, jumped from the back of one to the other, as the custom was after they had run several courses or heats. — This practice required great dexterity, being performed before the use of either saddles or stirrups. The custom was practised in the army when necessity required it; but chiefly amongst the Numidians, who always carried with them two horses at least for that purpose, changing them as they tired. The Greeks and

Detach-
ment
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Detinue.

and Romans borrowed the practice from them; but only used it at races, games, &c. The Sarmatæ were great masters of this exercise, and the hussars have still some remains of it.

DETACHMENT, in military affairs, a certain number of soldiers drawn out from several regiments or companies equally, to be employed as the general thinks proper, whether on an attack, at a siege, or in parties to scour the country.

DETENTION (from *detineo*, "I detain"), the possession or holding of lands, or the like, from some other claimant. The word is chiefly used in an ill sense, for an unjust withholding, &c.

DETENTS, in a clock, are those stops which, by being lifted up or let fall down, lock and unlock the clock in striking.

DETENT-WHEEL, or *Hoop-Wheel*, in a clock, that wheel which has a hoop almost round it, wherein there is a vacancy, at which the clock locks.

DETERGENTS, in *Pharmacy*, such medicines as are not only softening and adhesive, but also, by a peculiar activity, conjoined with suitable configuration of parts, are apt to abrade and carry along with them such particles as they lay hold on in their passage.

DETERIORATION, the impairing or rendering any thing worse; it is just the reverse of melioration.

DETERMINATE PROBLEM, is that which has but one solution, or a certain limited number of solutions; in contradistinction to an indeterminate problem, which admits of infinite solutions.

DETERMINATE Section, the name of a tract or general problem, written by the ancient geometrician Apollonius. None of this work has come down to us, excepting some extracts and an account of it by Pappus, in the Preface to the 7th book of his *Mathematical Collections*. He there says that the general problem was, "To cut an infinite right line in one point so, that, of the segments contained between the point of section sought, and given points in the said line, either the square on one of them, or the rectangle contained by two of them, may have a given ratio, either to the rectangle contained by one of them and a given line, or to the rectangle contained by two of them."

DETERMINATION, in mechanics, signifies much the same with the tendency or direction of a body in motion. See **MECHANICS**.

DETERMINATION, among school-divines, is an act of divine power, limiting the agency of second causes, in every instance, to what the Deity predestinated concerning them. See **PREDESTINATION**.

DETERSIVES, the same with **DETERGENTS**.

DETINUE, in *Law*, a writ or action that lies against one who has got goods or other things delivered to him to keep, and afterwards refuses to deliver them.—In this action, the thing detained is generally to be recovered, and not damages; but if one cannot recover the thing itself, he shall recover damages for the thing, and also for the detainer. Detinue lies for any thing certain and valuable, wherein one may have a property or right; as for a horse, cow, sheep, hens, dogs, jewels, plate, cloth, bags of money, sacks of corn, &c. It must be laid so certain, that the thing detained may be known and recovered: and therefore, for money out of a bag, or corn out of a sack, &c. it lies not; for the money or corn cannot

VOL. VII. Part I.

in this case be known from other money or corn; so that the party must have an action on the case, &c. Yet detinue may be brought for a piece of gold of the price of 22s. thought not for 22s. in money.

DETONATION, in *Chemistry*, signifies an explosion with noise made by the sudden inflammation of some combustible body: such are the explosions of *gunpowder*, *fulminating gold*, and *fulminating powder*. See **CHEMISTRY Index**.

DETRANCHE, in *Heraldry*, a line bend-wise, proceeding always from the dexter side, but not from the very angle diagonally athwart the shield.

DETTINGEN, a village of Germany, in the circle of the Upper Rhine, and in the territory of Hanau. Here the Austrians and the British, in June 1743, were attacked by the French, who met with a repulse; but as the allies were inferior in number, they could not make the advantage of it they might otherwise have done. E. Long. 8. 45. N. Lat. 50. 8.

DEVA, or **DEUNA**, in *Ancient Geography*, a town of the Cornavii in Britain. Now *Chester*, on the Dee. W. Long. 3. 0. N. Lat. 53. 15.

DEUCALDONIUS OCEANUS, supposed to be derived from the Gaelic words *Duab Gael*, the *northern Highlanders*: the sea on the north-west of Scotland.

DEUCALION, king of Thessaly. The flood said to have happened in his time (1500 B. C.), is supposed to have been only an inundation of that country, occasioned by heavy rains, and an earthquake that stopped the course of the river Peneus where it usually discharged itself into the sea. On these circumstances the fable of Deucalion's flood is founded.—According to the fable, he was the son of Prometheus. He governed his people with equity; but the rest of mankind being extremely wicked, were destroyed by a flood, while Deucalion and Pyrrha his queen saved themselves by ascending Mount Parnassus. When the waters were decreased, they went and consulted the oracle of Themis, on the means by which the earth was to be re-peopled: when they were ordered to veil their heads and faces, to unloose their girdles, and throw behind their backs the bones of their great mother. At this advice Pyrrha was seized with horror; but Deucalion explained the mystery, by observing, that their great mother must mean the earth, and her bones the stones; when taking them up, those Deucalion threw over his head became men, and those thrown by Pyrrha, women.

Some have supposed that Deucalion, whom the Greeks have represented under a variety of characters, and concerning whom their poets have given many fabulous accounts, was the same with the patriarch Noah; and that Deucalion's flood in Thessaly, as well as that of Ogyges in Attica, and of Prometheus in Egypt, were the same with that of Noah recorded in scripture. Diodorus Siculus expressly says, that in the deluge which happened in the time of Deucalion almost all flesh died. Apollodorus having mentioned Deucalion *ε-λαρνακι*, "consigned to an ark," takes notice, upon his quitting it, of his offering up an immediate sacrifice, *Δι φουζιω*, "to the God who delivered him." As he was the father of mankind, the ancients have given him great dignity and universal monarchy; though sometimes he is reduced to a petty

Detonation
||
Deucalion.

Deucalion
||
Devereux.

De Dea Sy-
ria, vol. iii.
p. 862.

king of Theffaly. Apollonius Rhodius makes him a native of Greece, and the son of Prometheus. We may learn, however, from their confused history, that the person represented was the first of men, through whom religious rites were renewed, cities built, and civil polity established in the world; none of which circumstances are applicable to any king of Greece. Philo assures us, that the Grecians call the person Deucalion, but the Chaldeans style him Noe, in whose time there happened the great eruption of waters. But as Lucian has given us the most particular history of the deluge, and that which comes nearest to the account given by Moses; and as he was a native of Samofata, a city of Commagene upon the Euphrates, a part of the world where memorials of the deluge were particularly preserved, and where an obvious reference to that history may be observed in the rites and worship of the country, we shall give the following extract of what he says on the subject. Having described Noah under the name of Deucalion, he says, that the present race of mankind are different from those who first existed; for those of the antediluvian world were all destroyed. The present world is peopled from the sons of Deucalion; having increased to so great a number from one person. In respect to the former brood, they were men of violence, and lawless in their dealings. They regarded not oaths, nor observed the rites of hospitality, nor showed mercy to those who sued for it. On this account they were doomed to destruction; and for this purpose there was a mighty eruption of waters from the earth, attended with heavy showers from above; so that the rivers swelled, and the sea overflowed, till the whole earth was covered with a flood, and all flesh drowned. Deucalion alone was preserved, to repeople the world. This mercy was shown to him on account of his justice and piety. His preservation was effected in this manner; he put all his family, both his sons and their wives, into a vast ark which he had provided, and he went into it himself. At the same time animals of every species, boars, horses, lions, serpents, whatever lived upon the face of the earth, followed him by pairs: all which he received into the ark, and experienced no evil from them; for there prevailed a wonderful harmony throughout by the immediate influence of the Deity. Thus were they wafted with him as long as the flood endured. After this he proceeds to mention, that upon the disappearing of the waters Deucalion went forth from the ark, and raised an altar to God.

Dr Bryant produces a variety of monuments that bear an obvious reference to the deluge in the Gentile history, besides this account of Deucalion and his food. Analysis of Ancient Mythology, vol. ii. p. 193

—250.

DEVENSHRING. See DEVONSHERING.

DEVENTER, a large, strong, trading, and populous town of the United Provinces, in Overijssel, with an university. It is surrounded with strong walls, flanked with several towers, and with ditches full of water. It is seated on the river Issel, 55 miles east of Amsterdam, and 42 west of Bentheim. E. Long. 5. 8. N. Lat. 52. 18.

DEVEREUX, ROBERT, earl of Essex, the son of Walter Devereux, Viscount Hereford, was born at Netherwood in Herefordshire, in the year 1567. He

succeeded to the title of earl of Essex at ten years of age; and about two years after was sent by his guardian, Lord Burleigh, to Trinity-college in Cambridge. He took the degree of master of arts in 1582, and soon after retired to his seat at Lampfie in South Wales. He did not however continue long in this retreat; for we find him, in his seventeenth year, at the court of Queen Elizabeth, who immediately honoured him with singular marks of her favour. Authors seem very unnecessarily perplexed to account for this young earl's gracious reception at the court of Elizabeth. The reasons are obvious; he was her relation, the son of one of her most faithful servants, the son-in-law of her favourite Leicester, and a very handsome and accomplished youth. Towards the end of the following year, 1585, he attended the earl of Leicester to Holland; and gave signal proofs of his personal courage during the campaign of 1586, particularly at the battle of Zutphen, where the gallant Sidney was mortally wounded. On this occasion the earl of Leicester conferred on him the honour of knight banneret.

In the year 1587, Leicester being appointed lord steward of the household, Essex succeeded him in the honourable post of master of the horse; and the year following, when the queen assembled an army at Tilbury to oppose the Spanish invasion, Essex was made general of the horse. From this time he was considered as the happy favourite of the queen. And if there was any mark yet wanting to fix the people's opinion in that respect, it was shown by the queen's conferring on him the honour of the garter.

We need not wonder that so quick an elevation, and to so great a height, should affect so young a man as the earl of Essex; who showed from henceforwards a very high spirit, and often behaved petulantly enough to the queen herself, who yet did not love to be controlled by her subjects. His eagerness about this time to dispute her favour with Sir Charles Blunt, afterwards Lord Mountjoy and earl of Devonshire, cost him some blood; for Sir Charles, thinking himself affronted by the earl, challenged him, and after a short dispute wounded him in the knee. The queen, so far from being displeased with it, is said to have sworn a good round oath, that it was fit somebody should take him down, otherwise there would be no ruling him. However, she reconciled the rivals; who, to their honour, continued good friends as long as they lived.

The gallant Essex, however, was not so entirely captivated with his situation as to become insensible to the allurements of military glory. In 1589, Sir John Norris and Sir Francis Drake having failed on an expedition against Spain, our young favourite, without the permission or knowledge of his royal mistress, followed the fleet; which he joined as they were sailing towards Lisbon, and acted with great resolution in the repulse of the Spanish garrison of that city. The queen wrote him a very severe letter on the occasion; but she was, after his return, soon appeased. Yet it was not long before he again incurred her displeasure, by marrying the widow of Sir Philip Sidney. In 1591, he was sent to France with the command of 4000 men to the assistance of Henry IV. In 1596, he was joined with the lord high admiral Howard in the command of the famous expedition against Cadiz, the success of which is universally known. In 1597 he was appointed

Devereux. pointed master of the ordnance; and the same year commanded another expedition against Spain, called the *Island voyage*, the particulars of which are also well known.

Soon after his return, he was created earl marshal of England; and on the death of the great Lord Burleigh, in 1598, elected chancellor of the university of Cambridge. This is reckoned one of the last instances of this great man's felicity, who was now advanced too high to sit at ease; and those who longed for his honours and employments, very closely applied themselves to bring about his fall. The first great shock he received in regard to the queen's favour, arose from a warm dispute between her majesty and himself, about the choice of some fit and able person to superintend the affairs of Ireland. The affair is related by Camden; who tells us, that nobody was present but the lord admiral, Sir Robert Cecil secretary, and Windbank clerk of the seal. The queen looked upon Sir William Knolls, uncle to Essex, as the most proper person for that charge: Essex contended, that Sir George Carew was a much fitter man for it. When the queen could not be persuaded to approve his choice, he so far forgot himself and his duty, as to turn his back upon her in a contemptuous manner; which insolence her majesty not being able to bear, gave him a box on the ear, and bid him go and be hanged. Essex, like a blockhead, put his hand to his sword, and swore revenge. Where was his gallantry on this occasion? Could a stroke from an angry woman tinge the honour of a gallant soldier? This violent storm, however, soon subsided; and they were again reconciled, at least apparently.

The total reduction of Ireland being brought upon the tapis soon after, the earl was pitched upon as the only man from whom it could be expected. This was an artful contrivance of his enemies, who hoped by this means to ruin him. Nor were their expectations disappointed. He declined this fatal preferment as long as he could: but perceiving that he should have no quiet at home, he accepted; and his commission for lord lieutenant passed the great seal on the 12th of March 1598. His enemies now began to insinuate that he had sought this command, for the sake of greater things which he then was meditating; but there is a letter of his to the queen, preserved in the Harleian collections, which shows, that he was so far from entering upon it with alacrity, that he looked upon it rather as a banishment, and a place assigned him for a retreat from his sovereign's displeasure, than a potent government bestowed upon him by her favour.

To the Queen.

“ From a mind delighting in sorrow; from spirits
wasted with passion; from a heart torn in pieces
with care, grief, and travail; from a man that
hateth himself and all things else that keep him alive;
what service can your majesty expect, since any ser-
vice past deserves no more than banishment and pro-
scription to the cursedest of all islands? It is your
rebels pride and succession must give me leave to
ransom myself out of this hateful prison, out of my
loathed body; which if it happen so, your majesty
shall have no cause to dislike the fashion of my death,
since the course of my life could never please you.

“ Happy he could finish forth his fate,
“ In some unhaunted desert most obscure
“ From all society, from love and hate
“ Of wordly folk; then should he sleep secure.
“ Then wake again, and yield God ever praise,
“ Content with hips and haws, and brambleberry;
“ In contemplation passing out his days,
“ And change of holy thoughts to make him merry.
“ Who when he dies, his tomb may be a bush
“ Where harmless robin dwells with gentle thrush.
“ Your majesty's exiled servant,
“ ROBERT ESSEX.”

Devereux.

The earl met with nothing in Ireland but ill success and crosses: in the midst of which, an army was suddenly raised in England, under the command of the earl of Nottingham; nobody well knowing why, but in reality from the suggestions of the earl's enemies to the queen, that he rather meditated an invasion on his native country, than the reduction of the Irish rebels. This and other considerations made him resolve to quit his post, and come over to England; which he accordingly did without leave. He burst into her majesty's bed-chamber as she was rising, and she received him with a mixture of tenderness and severity: but she soon after thought fit to deprive him of all his employments, except that of master of the horse. He was committed to the custody of the lord-keeper, with whom he continued six months. No sooner had he regained his liberty, than he was guilty of many extravagancies; to which he was instigated by knaves and fools, but perhaps more powerfully by his own passions. He first determined to obtain an audience of the queen by force. He refused to attend the council when summoned. When the queen sent the lord-keeper, the lord chief-justice, and two others, to know his grievances, he confined them; and then marched with his friends into the city, in expectation that the people would rise in his favour; but in that he was disappointed. He was at last besieged, and taken in his house in Essex-street; committed to the tower; tried by his peers, condemned, and executed. Thus did this brave man, this favourite of the queen, this idol of the people, fall a sacrifice to his want of that dissimulation, that cunning, that court-policy, by which his enemies were enabled to effect his ruin. He was a polite scholar, and a generous friend to literature.

To those who have not taken the trouble to consult and compare the several authors who have related the story of this unfortunate earl, it must appear wonderful, if, as hath been suggested, he was really beloved by Queen Elizabeth, that she should consent to his execution. Now that she had conceived a tender passion for him, is proved beyond a doubt by Mr Walpole in his very entertaining and instructive Catalogue of Noble Authors:—“ I am aware (says that author) that it is become a mode to treat the queen's passion for him as a romance. Voltaire laughs at it; and observes, that when her struggle about him must have been the greatest (the time of his death), she was sixty-eight.—Had he been sixty-eight, it is probable she would not have been in love with him.”—“ Whenever Essex acted a fit of sickness, not a day passed without the queen's sending often to see him; and once went so far as to sit

Devereux. long by him, and order his *broths and things*. It is recorded by a diligent observer of that court, that in one of his sick moods, he took the liberty of going up to the queen in his night-gown. In the height of these fretful fooleries, there was a mask at Black Fryars on the marriage of Lord Herbert and Mrs Russell. Eight lady maskers chose eight more to dance the measures. Mrs Fitton, who led them, went to the queen, and wooed her to dance. Her majesty asked what she was? *Affection*, she said. *Affection!* said the queen; *Affection is false*. Were not these the murmurs of a heart ill at ease? Yet her majesty rose, and danced. She was then sixty-eight. Sure it was as natural for her to be in love."

Mr Walpole farther observes, that her court and contemporaries had an uniform opinion of her passion for Essex, and quotes several instances from a letter written by Sir Francis Bacon to the earl; in which, among other things, he advises him to consult her taste in his very apparel and gestures, and to give way to any other inclination she may have. Sir Francis advised the queen herself, knowing her inclination, to keep the earl about her for *society*. What Henry IV. of France thought of the queen's affection for Essex, is evident from what he said to her ambassador—" *Que sa majesté ne laisseroit jamais son cousin d'Essex éloigner de son cotillon.*"—After his confinement, on hearing he was ill, she sent him word, with tears in her eyes, that if she might with her honour, she would visit him.

"If (says Mr Walpole) these instances are problematic, are the following so? In one of the curious letters of Rowland White, he says, *the queen hath of late used the fair Mrs Bridges with words and blows of anger*. In a subsequent letter, he says, *the earl is again fallen in love with his fairest B. It cannot choose but come to the queen's ear, and then he is undone.*"—Essex himself says, that her fond parting with him when he set out for Ireland, pierced his very soul.

Probably the reader has now very little doubt as to Queen Elizabeth's affection for the unfortunate Essex; but, in proportion to our belief of the existence of the affection, her motives for consenting to his execution become more inexplicable. Queen Elizabeth had a very high opinion of her beauty and personal attractions, and probably expected more entire adoration than the earl's passion for variety would suffer him to pay. Towards the latter end of her life, she was certainly an object of disgust. He had too much honest simplicity in his nature to feign a passion which he did not feel. She foolishly gave credit to the stories of his ambitious projects incompatible with her safety; and was informed that he had once inadvertently said, that *she grew old and cankered, and that her mind was become as crooked as her carcase*. If this be true, where is the woman that would not sacrifice such a lover to her resentment?

It is said, however, that, concerning his execution, her majesty was irresolute to the last, and sent orders to countermand it: but, considering his obstinacy in refusing to ask her pardon, afterwards directed that he should die. It is reported that the queen, in the height of her passion for the earl of Essex, had given him a ring, ordering him to keep it, and that whatever crime he should commit, she would pardon him when he should return that pledge. The earl, upon his con-

demnation, applied to Admiral Howard's lady, his relation, desiring her, by a person whom she could trust, to return it into the queen's own hands; but her husband, who was one of the earl's greatest enemies, and to whom she had imprudently told the circumstance, would not suffer her to acquit herself of the commission; so that the queen consented to the earl's death, being full of indignation against so proud and haughty a spirit, who chose rather to die than implore her mercy. Some time after, the admiral's lady fell sick, and being near her death, she sent word to the queen that she had something of great consequence to communicate before she died. The queen came to her bedside, and having ordered all her attendants to withdraw, the lady returned, but too late, the ring, desiring to be excused that she did not return it sooner: on which, it is said, the queen immediately retired, overwhelmed with grief.

The earl of Essex died in the thirty-fourth year of his age; leaving by his lady one son and two daughters.

DEVICE, among painters. See **DEVISE**.

DEVIL (*Diabolus*), an evil angel, one of those celestial spirits cast down from heaven for pretending to equal himself with God. The Ethiopians paint the devil white, to be even with the Europeans who paint him black.

There is no mention of the word *devil* in the Old Testament, but only of the word *Satan* and *Belial*: nor do we meet with it in any heathen authors, in the sense it is taken among Christians, that is, as a creature revolted from God. Their theology went no farther than to evil geni or *dæmons*.

Some of the American idolaters have a notion of two collateral independent beings, one of whom is good and the other evil: which last they imagine has the direction and superintendence of this earth, for which reason they chiefly worship him; whence those that give us an account of the religion of these savages give out, with some impropriety, that they worship the devil. The Chaldeans, in like manner, believed both a good principle and an evil one; which last they imagined was an enemy to mankind.

Isaiah, speaking, according to some commentators, of the fall of the devil, calls him *Lucifer*, from his former elevation and state of glory: but others explain this passage of Isaiah in reference to the king of Babylon, who had been precipitated from his throne and glory. The Arabians call *Lucifer*, *Eblis*; which some think is only a diminutive or corruption of the word *Diabolus*.

DEVIL on the Neck, a tormenting engine made of iron, straitening and wincing the neck of a man, with his legs together, in a horrible manner; so that the more he stirreth in it, the straiter it presseth him; formerly in use among the persecuting papists.

DEVINCTION (*Devinctio*), in antiquity, was used to signify a love charm or incantation to gain the affection of a person beloved.

It was done by tying knots; and is thus described by Virgil in his eighth Eclogue:

Necte tribus nodis ternos, Amarylli, colores:

Necte, Amarylli, modo; et Veneris, dic, vincula necto.

DEVISE, or **DEVICE**, in *Heraldry, Painting, and Sculpture,*

Devise *Sculpture*, any emblem used to represent a certain family, person, action, or quality; with a suitable motto, applied in a figurative sense. See **MOTTO**.

Devonshire.

The essence of a device consists in a metaphorical similitude between the things representing and represented: thus, a young nobleman, of great courage and ambition, is said to have borne for his devise, in a late carousal at the court of France, a rocket mounted in the air, with this motto in Italian, "*poco duri purche m'inalzi*;" expressing, that he preferred a short life, provided he might thereby attain to glory and eminence.

The Italians have reduced the making of devises into an art, some of the principal laws of which are these: 1. That there be nothing extravagant or monstrous in the figures. 2. That figures be never joined which have no relation or affinity with one another; excepting some whimsical unions established in ancient fables, which custom has authorised. 3. That the human body be never used. 4. The fewer figures the better. 5. The motto should be every way suitable.

DEVISE, in *Law*, the act whereby a person bequeathes his lands or tenements to another by his last will or testament.

DEUNX, in Roman antiquity, 11 ounces, or $\frac{11}{12}$ of the **LIBRA**.

DEVOLVED, something acquired by right of devolution. Such a right is devolved to the crown: such an estate devolved on M— by the death of N—

The word is also used for a right, acquired by a superior, of conferring a benefice, when the inferior and ordinary collator has neglected to confer, or has conferred it on an unqualified person.

If a patron neglects to present to a benefice in six months, the presentation lapses or devolves upon the bishop, from thence to the primate, and from thence to the king.

DEVOLUTION, in *Law*, a right acquired by succession from one to another.

DEVONSHERING, a term used by the farmers to express the burning of land by way of manure: the method is to cut off the turf about four inches thick, and burn it in heaps, and then spread the ashes upon the land. The name is probably derived from its having been earliest practised in Devonshire.

DEVONSHIRE, a county of England, bounded on the south by the English channel, on the north by the Bristol channel, on the east by Somersetshire, and on the west by Cornwall. It is about 69 miles long and 66 broad. The soil is various; in the western parts of the county it is coarse and moorish, bad for sheep, but proper for black cattle. In the northern parts, the dry soil and downs are well adapted to sheep, with numerous flocks of which they are well covered. Tolerable crops of corn are also produced there when the land is well manured. The soil of the rest of the country is rich and fertile both in corn and pasture, yielding also in some places plenty of marle for manuring it. In other places they pare off and burn the surface, making use of the ashes as a manure. Dr Campbell styles it a rich and pleasant country; as in different parts it abounds with all sorts of grain, produces abundance of fruit, has mines of lead, iron, and silver, in which it formerly exceeded Cornwall, though

now it is greatly inferior. On the coast also they have herring and pilchard fisheries. Devonshire sends two members to parliament, and gives title of duke to the noble family of Cavendish.

DEVOTION, (*Devotio*), a sincere ardent worship of the Deity.

Devotion, as defined by Jurieu, is a softening and yielding of the heart, with an internal consolation, which the souls of believers feel in the practice or exercise of piety. By devotion is also understood certain religious practices, which a person makes it a rule to discharge regularly; and with reason, if the exactitude be founded on solid piety, otherwise it is vanity or superstition. That devotion is vain and trifling, which would accommodate itself both to God and to the world. *Trevoux*.

The character of devotion has frequently suffered from the forbidding air which has been thrown over it, by the narrowness of bigotry on one hand, or the gloom of superstition on the other. When freer and more cheerful minds have not had occasion to see it accompanied with those feelings of delight and benevolence which naturally attend it, they are apt to be prejudiced against piety at large, by mistaking this ungracious appearance for its genuine form. Nor has the rant of vulgar enthusiasts contributed a little to beget or strengthen the same aversion, in persons of a cool and speculative temper; who have happened to meet with such images and phrases among religionists of a certain strain, as ill suit the rational, pure, and spiritual nature of true devotion. It may likewise be remarked on the other side, that people of taste and sensibility have not seldom been disgusted with the insipid style too often employed on such subjects, by those who possess neither, or who purposely avoid every thing of that kind, from an aim at simplicity misunderstood, or perhaps from a fear of being thought too warm, in an age of fashionable indifference and false refinement.

Wherever the vital and unadulterated spirit of Christian devotion prevails, its immediate object will be to please Him whom we were made to please, by adoring his perfections; by admiring his works and ways; by entertaining with reverence and complacence the various intimations of his pleasure, especially those contained in holy writ; by acknowledging our absolute dependence, and infinite obligations; by confessing and lamenting the disorders of our nature and the transgressions of our lives; by imploring his grace and mercy through Jesus Christ; by interceding for our brethren of mankind; by praying for the propagation and embellishment of truth, righteousness, and peace on earth; in fine, by longing for a more entire conformity to the will of God, and breathing after the everlasting enjoyment of his friendship. The effects of such a spirit habitually cherished, and feelingly expressed before him, with conceptions more or less enlarged and elevated, in language more or less emphatical and accurate, sententious or diffuse, must surely be important and happy. Among these effects may be reckoned, a profound humility in the sight of God, a high veneration for his presence and attributes, an ardent zeal for his worship and honour, an affectionate faith in the Saviour of the world, a constant imitation of his divine example, a diffusive charity for men of all denominations,

Devotion,
Deutero-
canonical.

denominations, a generous and unwearied self-denial for the sake of virtue and society, a total resignation to Providence, an increasing esteem for the gospel, with clearer and firmer hopes of that immortal life which it has brought to light.

DEVOTION, among the Romans, was a kind of sacrifice or ceremony, whereby they consecrated themselves to the service of some person. The ancients had a notion, that the life of one might be ransomed by the death of another; whence those devotions became frequent for the lives of the emperors. Devotion to any particular person was unknown among the Romans till the time of Augustus. The very day after the title of Augustus had been conferred upon Octavius, Pacuvius, a tribune of the people, publicly declared, that he would devote himself to Augustus, and obey him at the expence of his life (as was the practice among barbarous nations), if he was commanded. His example was immediately followed by all the rest; till at length it became an established custom never to go to salute the emperor, without declaring that they were devoted to him.—Before this, the practice of the Romans was that of devoting themselves to their country. See DECIUS.

DEUTEROCANONICAL, in the school theology, an appellation given to certain books of holy Scripture, which were added to the canon after the rest; either by reason they were not wrote till after the compilation of the canon, or by reason of some dispute as to their canonicity. The word is Greek, being compounded of *deuteros*, second, and *kanonikos*, canonical.

The Jews, it is certain, acknowledged several books in their canon, which were put there later than the rest. They say, that under Esdras, a great assembly of their doctors, which they call by way of eminence the *great synagogue*, made the collection of the sacred books which we now have in the Hebrew Old Testament. And they agree that they put books therein which had not been so before the Babylonish captivity; such are those of Daniel, Ezekiel, Haggai, &c. and those of Esdras, and Nehemiah.

And the Romish church has since added others to the canon, that were not, and could not be, in the canon of the Jews, by reason some of them were not composed till after. Such is the book of Ecclesiasticus, with several of the apocryphal books, as the Maccabees, Wisdom, &c. Others were added still later, by reason their canonicity had not been yet examined; and till such examen and judgment they might be set aside at pleasure.—But since that church has pronounced as to the canonicity of these books, there is no more room now for her members to doubt of them, than there was for the Jews to doubt of those of the canon of Esdras. And the deutero-canonical books are with them as canonical as the proto-canonical; the only difference between them consisting in this, that the canonicity of the one was not generally known, examined, and settled, so soon as that of the others.

The deutero-canonical books in the modern canon, are the book of Esther, either the whole, or at least the seven last chapters thereof; the Epistle to the Hebrews; that of James; and that of Jude; the second of St Peter; the second and third of St John; and the Revelation. The deutero-canonical parts of books,

are in Daniel, the hymn of the three children; the prayer of Azariah; the histories of Susannah, of Bel and the Dragon; the last chapter of St Mark; the bloody sweat, and the appearance of the angel, related in St Luke, chap. xxii.; and the history of the adulterous woman in St John, chap. viii.

DEUTERONOMY, one of the sacred books of the Old Testament; being the last of these written by Moses; (See PENTATEUCH). The word is Greek, compounded of *deuteros*, second, and *nomos*, law.

Deuteronomy was written in the 40th year after the delivery from Egypt, in the country of the Moabites, beyond Jordan; Moses being then in the 120th year of his age. It contains, in Hebrew, 11 paraches, though only 10 in the edition of the rabbins at Venice; 20 chapters, and 955 verses. In the Greek, Latin, and other versions, it contains 34 chapters. The last is not of Moses. Some say it was added by Joshua immediately after Moses's death; which is the most probable opinion. Others will have it added by Esdras.

DEUTEROPOTMI, in Grecian antiquity, a designation given to such of the Athenians as had been thought dead, and, after the celebration of the funeral rites, unexpectedly recovered. It was unlawful for the deuteropotmi to enter into the temple of the Eumenides, or to be admitted to the holy rites, till after they were purified, by being let through the lap of a woman's gown, that they might seem to be new born.

DEUTEROSIS, the Greek name by which the Jews called their Mischnah, or second law. See MISCHNAH.

DEUTZIA, a genus of plants belonging to the decandria class. See BOTANY Index.

DEW, a dense, moist vapour, found on the earth in spring and summer mornings, in form of a misting rain, being collected there chiefly while the sun is below the horizon.

It hath been disputed whether the dew is formed from the vapours ascending from the earth during the night-time, or from the descent of such as have been already raised through the day. The most remarkable experiments adduced in favour of the first hypothesis are those of Dr Dufay of the Royal Academy of Sciences at Paris. He supposed, that if the dew ascended, it must wet a body placed low down sooner than one placed in a higher situation; and, if a number of bodies were placed in this manner, the lowermost would be wetted first; and the rest in like manner, gradually up to the top.

To determine this, he placed two ladders against one another, meeting at their tops, spreading wide asunder at the bottom, and so tall as to reach 32 feet high. To the several steps of these he fastened large squares of glass like the panes of windows, placing them in such a manner that they should not overshadow one another. On the trial it appeared exactly as Dr Dufay had apprehended. The lower surface of the lowest piece of glass was first wetted, then the upper, then the lower surface of the pane next above it; and so on, till all the pieces were wetted to the top. Hence it appeared plain to him, that the dew consisted of the vapours ascending from the earth during the night-time; which, being condensed by the coldness of the atmosphere,

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Dew.

Dew. atmosphere, are prevented from being dissipated as in the day-time by the sun's heat. He afterwards tried a similar experiment with pieces of cloth instead of panes of glass, and the result was quite conformable to his expectations. He weighed all the pieces of cloth next morning, in order to know what quantity of water each had imbibed, and found those that had been placed lowermost considerably heavier than such as had been placed at the top; though he owns that this experiment did not succeed so perfectly as the former.

M. Muschenbroek, who embraced the contrary opinion, thought he had invalidated all Dr Dufay's proofs, by repeating his experiments, with the same success, on a plane covered with sheet-lead. But to this Dr Dufay replied, that there was no occasion for supposing the vapour to rise through the lead, nor from that very spot; but that as it arose from the adjoining open ground, the continual fluctuation of the air could not but spread it abroad, and carry it thither in its ascent.

But though this experiment of M. Muschenbroek's is not sufficient to overthrow those of Dr Dufay, it must still remain dubious whether the dew rises or falls. One thing which seems to favour the hypothesis of its descent is, that in cloudy weather there is little or no dew to be observed. From this M. de Luc brings an argument in favour of the hypothesis just now mentioned. He accounts for it in the following manner: When there are no clouds in the air, the heat of the inferior air and that which rises from the earth diffuses itself into the superior regions; and then the vapours which are dispersed throughout the air condense, and fall down in dew: But, when the clouds continue, they separate the inferior from the superior part of the atmosphere, and thus prevent the dissipation of the heat, by which means the vapours remain suspended. When the sky grows cloudy, some hours after sunset, although the heat has been sensibly diminished, it is again increased; because continuing to rise out of the earth, it is accumulated in the inferior air. But neither can this be reckoned a positive proof of the descent of the dew; since we may as well suppose the heat of the atmosphere to be great enough to dissipate it in its ascent, as to keep it suspended after its ascent through the day.

On the other hand, its being found in greater quantities on bodies placed low down than on such as are high up, is no proof of the descent of the dew; because the same thing is observed of rain. A body placed low down receives more rain than one placed in an elevated situation; and yet the rain certainly descends from the atmosphere. The reason why the dew appears first on the lower parts of bodies may be, that, in the evening, the lower part of the atmosphere is first cooled, and consequently most disposed to part with its vapours. It is also certain, that part of the water contained in the air may be condensed at any time on the sides of a glass, by means of cold, so as to run down its sides in small drops like dew. It seems therefore, that this subject is not sufficiently determined by such experiments as have yet been made; nor indeed does it appear easy to make such experiments as shall be perfectly decisive on the matter.

Several substances exposed to the same dew receive and charge themselves with it in a very different man-

ner; some more, others less, and some even not at all. The drops seem to make a sort of choice of what bodies they shall affix themselves to; glass and crystals are those to which they adhere in the most ready manner, and in the largest quantity; but metals of all kinds never receive them at all, nor do the drops ever adhere to them. The reason of this is, probably, because metals promote evaporation more than glass does. Thus, if a piece of metal and a piece of glass are both made equally moist, the former will be found to dry in much less time than the latter. Hence it would seem, that there is between metals and water some kind of repulsion; and this may be sufficient to keep off the very small quantity that falls in dew; for whatever tends to make water evaporate after it is actually in contact with any substance, also tends to keep the water from ever coming into contact with it. On this subject several curious particulars are mentioned by Dr Percival relative to the attraction and repulsion between dew and glass or metalline vessels. The experiments were made by M. du Fay, who, in order to determine with certainty whether the difference between vitrified substances and metals was the same in all cases, set a china saucer in the middle of a silver plate, and on one side, adjoining to it, was placed a china plate, with a silver dish very much resembling the saucer in the middle. In this experiment the china saucer was covered with dew, but the plate, though extending four inches round it, was not moistened in the least. The china plate also had become quite moist, while the silver vessel in the middle had not received the smallest drop. M. du Fay next endeavoured to ascertain whether a china saucer set upon a plate of metal, as already described, did not receive more dew than it would have done if exposed alone. To accomplish this design, he took two watch crystals of equal dimensions, and placed the one upon a plate of silver, the other upon a plate of china, each with its concavity uppermost. That which was upon the silver plate he surrounded with a ferrel of the same metal, well polished, that no watery particles might attach themselves to the convex surface of the glass. In this situation he exposed the crystals for several days successively, and always found five or six times more dew in that which was on the china plate than on the other placed on the silver. The repulsion between the dew and silver is further confirmed by the following experiment of M. du Fay, with regard to the crystal on the silver plate. He informs us, that the small quantity of dew on the side near the centre, was in minute drops; and that round the border there was a space of five or six lines perfectly dry; towards which the drops regularly decreased in magnitude, as if the silver ferrel had driven away the dew from that part of the glass which was contiguous to it. These experiments were repeated thirty times with invariable success. M. du Fay's experiments have received a remarkable confirmation, from some lately made by Dr Watson, now bishop of Llandaff, with a view to determine the quantity of vapour that ascends from a given surface of earth. "By means of a little bees-wax (says he), I fastened a half-crown very near, but not quite contiguous, to the side of the glass; and, setting the glass with its mouth downward on the grass, it presently became covered with vapour, except that part of it which was next the half-crown. Not only

Dew.

Dew. the half-crown itself was free from vapour, but it had hindered any from settling on the glass which was near it; for there was a little ring of glass surrounding the half-crown, to the distance of a quarter of an inch, which was quite dry, as well as that part of the glass which was immediately under the half-crown; it seemed as if the silver had repelled the water to that distance. A large red wafer had the same effect as the ring of glass contiguous to it wetted. A circle of white paper produced the same effect, so did several other substances, which it would be too tedious to enumerate."

Substances of a very different kind from the usual dew are said to have sometimes fallen from the atmosphere. In the Phil. Trans. we are told, that in the year 1695 there fell in Ireland, in the provinces of Leinster and Munster, for a considerable part of the winter and spring, a fatty substance resembling butter, instead of the common dew. It was of a clammy texture, and dark-yellow colour; and was, from its great resemblance, generally called *dew-butter* by the country people. It always fell in the night, and chiefly in the moorish low grounds; and was found hanging on the tops of the grass, and on the thatch of the houses of the poor people. It was seldom observed to fall twice in the same place; and usually, wherever it fell, it lay a fortnight upon the ground before it changed colour; but after that it gradually dried up, and became black. The cattle fed in the fields where it lay as well as in others, and received no harm by it. It fell in pieces of the bigness of one's finger-end; but they were dispersed scatteringly about, and it had an offensive smell like a church-yard. There were in the same places very stinking fogs during the winter, and some people supposed this no other than a sediment from the fog. It would not keep very long, but never bred worms.

May Dew whitens linen and wax; the dew of autumn is converted into a white frost. Out of dew putrified by the sun, arise divers insects, which change apace from one species into another; what remains is converted into a fine white salt, with angles like those of saltpetre, after a number of evaporations, calcinations, and fixations.

There is a spirit drawn from May-dew, which has wonderful virtues attributed to it. The method of collecting and preparing it, is described by Hanneman, physician at Kiel. It is to be gathered in clean linen cloths; exposed to the sun in close vials; then distilled, and the spirit thrown upon the caput mortuum; this is to be repeated till the earth unite with the spirit, and become liquid; which happens about the seventh or eighth cohobation or distillation. By such means you gain a very red, odoriferous spirit. Stolterfoht, a physician of Lubec, thinks May-dew may be gathered in glass-plates, especially in still weather, and before sunrise. And Etmuller is of the same sentiment. It might likewise be collected with a glass funnel, exposed to the air, having a crooked neck to bring the dew into a vial in a chamber. See Phil. Trans. N° 3. Hoffman, and others. It is apparently from the preparation of this dew, that the brothers of the Rosy-Cross took their denomination. See ROSICRUCIANS.

Dew-Born, in country affairs, a distemper in cattle,

being a swelling in the body, as much as the skin can hold, so that some beasts are in danger of bursting. This distemper proceeds from the greediness of a beast to feed, when put into a rank pasture, but commonly when the grass is full of water. In this case the beast should be stirred up and down, and made to purge well; but the proper cure is bleeding in the tail; then take a grated nutmeg, with an egg, and breaking the top of the shell, put out so much of the white as you may have room to slip the nutmeg into the shell; mix them together, and then let shell and all be put down the beast's throat; that done, walk him up and down, and he will soon mend.

Dew-Worm. See LUMBRICUS, HELMINTHOLOGY Index.

DEWAN, in the Mogul government, is the receiver-general and civil governor of the province. In private affairs the same word signifies a steward.

DEWANNY, the revenue department of a province.

DE WIT, JOHN, the famous pensionary, was born in 1625, at Dort; where he prosecuted his studies so diligently, that, at the age of 23, he published *Elementa Curvarum Linearum*, one of the profoundest books in mathematics at that time. After taking his degrees, and travelling, he, in 1650, became pensionary of Dort, and distinguished himself very early in the management of public affairs. He opposed with all his power the war between the English and the Dutch; and when the event justified his predictions, he was unanimously chosen pensionary of Holland. In this capacity he laboured to procure a peace with Cromwell; in which peace a secret article was introduced by one side or other, for the exclusion of the house of Orange. In the war with England after the king's restoration, when it was thought expedient, on Opdam's defeat and death, that some of their own deputies should command the fleet, he was one of the three put in commission; and wrote an accurate relation of all that happened during the expedition he was engaged in, for which, at his return, he received the solemn thanks of the States General. In 1667, he established the perpetual edict for abolishing the office of Stadtholder, to fix the liberty of the republic, as it was hoped, on a firm basis; which produced seditions and tumults, that restored the office, on pretence that the De Wits were enemies to the house of Orange, and plundered the state. The pensionary begged dismissal from his post; which was granted, with thanks for his faithful services. But the invasion of the French, and the internal divisions among the Hollanders themselves, spread everywhere terror and confusion; which the Orange party heightened to ruin the De Wits. Cornelius, the pensionary's brother, was imprisoned and condemned to exile; and a report being raised that he would be rescued, the mob armed, and surrounded the prison where the two brothers then were together, dragged them out, barbarously murdered them, hung the bodies on the gallows, and cut them to pieces, which many of them even broiled and ate with savage fury. Such was the end of one of the greatest geniuses of his age; of whom Sir William Temple, who was well acquainted with him, writes with the greatest esteem and admiration. He observes, that when he was at the head of the government, he differed nothing in his manner of living from

Dew-
Worm
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De Wit.

Dextans from an ordinary citizen. His office, for the first ten years, brought him in little more than 300*l.* and in the latter part of his life, not above 700*l.* per annum. He refused a gift of 10,000*l.* from the states-general, because he thought it a bad precedent in the government. With great reason, therefore, Sir William Temple, speaking of his death, observes, "He was a person that deserved another fate, and a better return from his country, after 18 years spent in their ministry, without any care of his entertainments or ease, and little of his fortune. A man of unwearied industry, inflexible constancy, sound, clear, and deep understanding, and untainted integrity; so that whenever he was blinded, it was by the passion he had for that which he esteemed the good and interest of the state. This testimony is justly due to him from all that were well acquainted with him; and is the more willingly paid, since there can be as little interest to flatter, as honour to reproach, the dead."

Besides the works already mentioned, he wrote a book containing those maxims of government upon which he acted; which will be a never-fading monument to his immortal memory. A translation of it from the original Dutch, entitled, *The true interest and political maxims of the republic of Holland*, has been printed in London; to the last edition of which, in 1746, are prefixed historical memoirs of the illustrious brothers Cornelius and John de Witt, by John Campbell, Esq.

DEXTANS, in Roman antiquity, ten ounces, or $\frac{1}{10}$ of their libra. See **LIBRA**.

DEXTER, in *Heraldry*, an appellation given to whatever belongs to the right side of a shield or coat of arms: thus we say, *bend-dexter*, *dexter point*, &c.

DEXTROCHERE, or **DESTROCHERE**, in *Heraldry*, is applied to the right arm painted in a shield, sometimes naked, sometimes clothed, or adorned with a bracelet; and sometimes armed, or holding some moveable or member used in the arms.

DEY, the title of the sovereign of Algiers, under the protection of the grand signior. A prince under this title was appointed by the sultan, at the request of the Turkish soldiers, in the year 1710. The term *dey* in the Turkish language, signifies *an uncle* by the mother's side; and the reason of the denomination is this: that the Turkish military consider the grand signior as their father; the republic as their mother, by which they are nourished and maintained; and the dey as the brother of the republic, and consequently the uncle of all who are under his dominion. Besides the age, experience, and valour, which are necessary qualifications of a person to be elected, he must also be a native Turk, and have made the voyage to Mecca. He has no guards or considerable retinue. He presides at the divan, and is most distinguished by the respect and submission which are paid him.

DIABETES, in *Physic*, a preternatural discharge of urine, which has changed its properties, and exceeds the quantity of liquids drank. See **MEDICINE Index**.

DIABOLUS. See **DEVIL**.

Diabolus Marinus. See **RAIA**, **ICHTHYOLOGY Index**.

Diabolus Metallorum, a title given by chemists to jupiter or tin: because, when incorporated with other

metals, it renders them incapable of reduction, or at least very difficult to undergo that operation.

DIACAUSTIC CURVE, a species of the caustic curves formed by refraction.

DIACHYLON, in *Pharmacy*, an emollient digestive plaster, composed of mucilages or viscid juices drawn from certain plants. See **PHARMACY**.

DIACODIUM, in *Pharmacy*, a syrup prepared from poppy heads. It is also called the *syrupus de meconio*. See **PHARMACY**.

DIACOUSTICS, called also **DIAPHONICS**, the consideration of the properties of refracted sound, as it passes through different mediums. The word is formed from the Greek *dia, per*, "through," which intimates a passage; and *ακουω*, "I hear," *q. d.* the consideration of the passage of the sounds we hear. See **ACOUSTICS**.

DIACRII, in antiquity, was the name of a party or faction at Athens.—That city, we read, was divided into two parties: the one favourers of an oligarchy, who would only have a few persons employed in the government; the other consisted of such as were for a democratical or popular government, wherein the whole people should have a share. The first were called *diacrii*, and the latter *pediaci*; the latter inhabiting the lower, and the former the *αγορα*, or upper quarter or part of the city.—The laws of Solon imported, that Pisistratus should be chief of the diacrii; though the scholiast on Aristophanes's comedy *The Wasps*, affirms, that Pandion distributed the quarter of the diacrii among his sons, and put Lycus at their head.

DIADELPHIA (*dis*, "twice," and *αδελφος*, "a brother"), the 17th class in the sexual system, comprehending those plants which bear hermaphrodite flowers with two sets of united stamina; but this circumstance must not be absolutely depended on. They are the *papilionacei* of Tournefort, the *irregulares tetrapetali* of Rivinus, and the *leguminosæ* of Ray. See **BOTANY Index**.

DIADEM, in antiquity, a head-band or fillet, worn by kings as a badge of their royalty. It was made of silk, thread, or wool, and tied round the temples and forehead, the ends being tied behind, and let fall on the neck. It was usually white and quite plain; though sometimes embroidered with gold, and set with pearls and precious stones. In latter times, it came to be twisted round crowns, laurels, &c. and even appears to have been worn on divers parts of the body. See **CROWN**. The word comes from the Latin *diadema*; of the Greek *διαδημα*, "a little band encompassing the head," of the verb *διαδωω*, *cingo*, "I gird."

DIADEM, in *Heraldry*, is applied to certain circles or rims serving to inclose the crowns of sovereign princes, and to bear the globe and cross, or the fleur de lis, for their crest. The crowns of sovereigns are bound, some with a greater and some with a less number of diadems.—The bandage about the heads of Moors on shields is also called *diadem* in blazoning.

DIÆRESIS, in *Surgery*, an operation serving to divide and separate the part when the continuity is a hinderance of the cure.

DIÆRESIS, in *Medicine*, is the consuming of the vessels of an animal body, when, from some corroding cause, certain passages are made which naturally ought not

Diæresis
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Diah.

to have been; or certain natural passages are dilated beyond their ordinary dimensions, so that the humours which ought to have been contained in the vessels extravasate or run out.

DIÆRESIS, in *Grammar*, the division of one syllable into two, which is usually noted by two points over a letter, as *aulai*, instead of *aula*, *dissolvienda* for *dissolventa*.

DIÆTETÆ, in Grecian antiquity, a kind of judges, of which there were two sorts, the cleroti and diallaçterii. The former were public arbitrators, chosen by lot to determine all causes exceeding ten drachms, within their own tribe, and from their sentence an appeal lay to the superior courts.

The diallaçterii, on the contrary, were private arbitrators, from whose sentence there lay no appeal, and accordingly they always took an oath to administer justice without partiality.

DIAGLYPHICE, the art of cutting or engraving figures on metals, such as seals, intaglios, matrices of letters, &c. or coins for medals. See ENGRAVING.

DIAGNOSIS, (from *διαγνωσκω*, to discern or distinguish), the diagnostics or the signs of a disease. They are of two kinds, viz. the adjunct and the pathognomonic: the first are common to several diseases, and serve only to point out the difference between diseases of the same species; the latter are those which always attend the disease, and distinguish it from all others.

DIAGNOSTIC, in *Medicine*, a term given to those signs which indicate the present state of a disease, its nature and cause.

DIAGONAL, in *Geometry*, a right line drawn across a quadrilateral figure, from one angle to another; by some called the *diameter*, and by others the *diametral*, of the figure. See GEOMETRY.

DIAGORAS, surnamed the *Atheist*, lived in the 91st Olympiad. He was not a native of Athens, but he philosophised there. He delighted in making verses, and had composed a poem which a certain poet stole from him. He sued the thief, who swore it was his own, and got glory by it. This tempted Diagoras to deny a Providence. The Athenians summoned him to give an account of his doctrine. He fled, and they set a price upon his head, promising a reward to any who should kill him; but he took shipping, and was cast away.

DIAGRAM, in *Geometry*, a scheme for explaining and demonstrating the properties of any figure, whether triangle, square, circle, &c. See GEOMETRY.

DIAGRAM, among ancient musicians, the same with the scale of the modern. See SCALE.

DAH, DIAT, a name given by the Arabs to the punishment of retaliation. By the Mahometan law, a brother, or the next relation of a murdered person, ought to take part against the murderer, and demand his blood in reparation for that which he has shed. Before the time of Mahomet, the Arabs had a custom of putting a freeman of their prisoners to death in lieu of every slave they lost in battle, and a man for every woman that was killed. But Mahomet regulated the laws of reprisal; directing in the Alcoran, by the diat, that a freeman should be required for a freeman, and a slave for a slave. The Turks, probably in consequence of this law, formerly massacred almost all their priso-

ners of war, but they now content themselves with enslaving and selling them.

DIAHEXAPLA, or DIAHEXAPTE, among farmers, a compound medicine, so called from its containing six ingredients, viz. birthwort and gentian roots, juniper-berries, bay-berries, myrrh, and ivory shavings. It is commended for colds, consumptions, purfiness, and many other disorders in horses.

DIAL, an instrument serving to measure time; which, if effected by the aid of the sun, is called a *sun-dial*. The word is from the Latin *dies*, "day," because indicating the hour of the day. The ancients also called it *sciatherium*, from its effect by the shadow. See the article DIALLING.

DIALECT, an appellation given to the language of a province in so far as it differs from that of the whole kingdom. The term, however, is more particularly used in speaking of the ancient Greek, whereof there were four dialects, the Attic, Ionic, Æolic, and Doric; each of which was a perfect language in its kind, that took place in certain countries, and had peculiar beauties.

In Great Britain, besides the grand diversity of English and Scotch, almost every county has a dialect of its own, all differing considerably in pronunciation, accent, and tone, although one and the same language.

DIALECTICS, in the literary history of the ancients, that branch of logics, which taught the rules and modes of reasoning. See LOGIC, Part III.

Zeno Eleates was the first who discovered the natural series of principles and conclusions observed in reasoning, and formed an art thereof in form of a dialogue; which, for this reason, was called *dialectica*.

The dialectica of the ancients is usually divided into several kinds; the first was the *eleatica*, that of Zeno Eleates, which was threefold; viz. *consecutionum*, *colloquutionum*, and *contentionum*. The first consisting of rules for deducing or drawing conclusions. The second, the art of dialogue; which became of such universal use in philosophy, that all reasoning was called *interrogation*: then, syllogism being laid aside, the philosophers did all by dialogue; it lying on the respondent to conclude and argue from the several concessions made. The last part of Zeno's dialectics, *Egison*, was contentious, or the art of disputing and contradicting; though some, particularly Laertius, ascribe this part to Protagoras, a disciple of Zeno.

The second is the *dialectica megarica*, whose author is Euclid, not the mathematician, but another of Megara. He gave much into the method of Zeno and Protagoras: though there are two things appropriated to him: the first, that he impugned the demonstrations of others, not by assumptions, but conclusions; continually making illations, and proceeding from consequence to consequence: the second, that he set aside all arguments drawn from comparisons of similitude as invalid.

He was succeeded by Ebulides, from whom the sophistic way of reasoning is said to be derived. In his time the art is described as manifold: *mentiens*, *fallens*, *electra*, *obelata*, *arcevalis*, *cornuta* and *calva*. See SOPHISM.

The third is the dialectics of Plato, which he proposes as a kind of analysis to direct the human mind, by

Diahexapia
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Dialectics.

Dialectics. by dividing, defining, and bringing things to the first truth; where being arrived, and stopped there a little, it applies itself to explain sensible things, but with a view to return to the first truth, where alone it can rest. Such is the idea of Plato's analysis.

The fourth is Aristotle's dialectics; containing the doctrine of simple words, delivered in his book of *Prædicaments*; the doctrine of propositions, in his book *De Interpretatione*; and that of the several kinds of syllogism, in his books of *Analytics*, *Topics*, and *Elenchuses*.

The fifth is the dialectics of the Stoics; which they call a part of philosophy, and divide into rhetoric and dialectic; to which some add the definitive, whereby things are justly defined; comprehending likewise the canons or criterions of truth.

The Stoics, before they come to treat of syllogisms, have two principal places; the one about the signification of words, the other about the things signified. On occasion of the first, they consider abundance of things belonging to the grammarian's province: what, and how many letters; what is a word, diction, speech, &c. On occasion of the latter, they consider things themselves, not as without the mind, but as in it, received in it by means of the senses. Accordingly, they first teach, that *nil fit in intellectu, quod non prius fuerit in sensu*; "whatever is in the mind came thither by the senses;" and that *aut incurfione fui*, as Plato, who meets the sight; *aut fimilitudine*, as Cæsar by his effigy; *aut proportione*, either by enlarging as a giant, or by diminishing as a pigmy; *aut translatione*, as a Cyclops; *aut compositione*, as a Centaur; *aut contrario*, as death; *aut privatione*, as a blind man.

The sixth is Epicurus's dialectics; for though he seems to have despised dialectic, he cultivated it with

vigour. He was only averſe to that of the Stoics; who he thought attributed too much to it, as pronouncing him alone wife who was well verſed in dialectics.

For this reason, Epicurus, ſeeming to ſet aſide the common dialectics, had recourſe to another way, viz. to certain canons which he ſubſtituted in their ſtead, the collection whereof he called *canonica*; and as all questions in philoſophy are either *de re* or *de voce*, he gave ſeparate rules for each. See *EPICUREANS*.

DIALIA, in antiquity, ſacrifices performed by the flamen dialis. See *FLAMEN*.

DIALING, or **DIALLING**. See *DIALLING*.

DIALIS, in antiquity, a Latin term ſignifying ſomething that belongs to Jupiter.—The word is formed from *Διος*, the genitive of *Zeus*, *Jupiter*.

Flamen DIALIS. See *FLAMEN*.

DIALITHA, in the writings of the ancients, a word uſed to expreſs the elegant ornaments of the Greeks and Romans, compoſed of gold and gems. They alſo called theſe *libocolla*, "cemented ſtones or gems;" the gold being in this caſe as a cement to hold the ſtones together. They wore bracelets and other ornamental things about their habits thus made; and their cups and table-furniture, for magnificent treats, were of this kind. The green ſtones were found to ſucceed beſt of all in theſe things; and the emerald and greeniſh topaz, or, as we call it, chryſolite, were moſt in eſteem for this purpoſe. This uſe of the ſtones explains what Pliny very often ſays of them in his deſcription: *Nibil jucundius aurum decet*, "Nothing becomes gold better;" this he ſays of the green topaz or chryſolite; and this and many other like paſſages have greatly perplexed the critics, who did not hit upon this explication.

D I A L L I N G,

THE art of drawing dials on the ſurface of any given body or plane. The Greeks and the Latins call this art *gnomonica* and *ſciatherica*, by reaſon it diſtinguiſhes the hours by the ſhadow of the gnomon. Some call it *photoſciatherica*, becauſe the hours are ſometimes ſhown by the light of the ſun. Laſtly, others call it *horologiography*.

Dialling is a moſt neceſſary art: for notwithstanding we are provided with moving machines, ſuch as clocks and watches, to ſhow time; yet theſe are apt to be out of order, go wrong, and ſtop: conſequently they ſtand frequently in need of regulation by ſome invariable inſtrument, as a dial; which being rightly conſtructed and duly placed will always, by means of the ſun, inform us of the true ſolar time; which time being corrected by the equation table published annually in the ephemerides, almanacks, and other books, will be the mean time to which clocks and watches are to be ſet.

The antiquity of dials is beyond doubt. Some attribute their invention to Anaximenes Mileſius; and others to Thales. Vitruvius mentions one made by the ancient Chaldee hiſtorian Berofus, on a reclining plane, almoſt parallel to the equinoctial. Ariſtarchus Samius invented the hemiſpherical dial. And there

were ſome ſpherical ones, with a needle for a gnomon. The diſcus of Ariſtarchus was a horizontal dial, with its limb raiſed up all around, to prevent the ſhadow ſtretching too far.

It was late ere the Romans became acquainted with dials. The firſt ſun-dial at Rome was ſet up by Papius Curſor, about the year of the city 460; before which time, ſays Pliny, there is no mention of any account of time but by the ſun's riſing and ſetting: it was ſet up at or near the temple of Quirinus, but went ill. About 30 years after, M. Valerius Meſſala being conſul, brought out of Sicily another dial, which he ſet up on a pillar near the roſtrum; but for want of its being made for that latitude, it could not go true. They made uſe of it 99 years; till Martius Philippus ſet up another more exact.

But there ſeem to have been dials among the Jews much earlier than any of theſe. Witneſs the dial of Ahaz: who began to reign 400 years before Alexander, and within 12 years of the building of Rome: mentioned by Iſaiah, chap. xxxviii. ver. 8.

The firſt profeſſed writer on dialling is Clavius; who demonſtrates all, both the theory and the operations, after the rigid manner of the ancient mathematicians;

1
Utility of
this art.

2
Hiſtory.

but so intricately, that few, we dare say, ever read them all. Dechales and Ozanam give much easier demonstrations in their *Courses*, and Wolfius in his *Elements*. M. Picard has given a new method of making large dials, by calculating the hour-lines; and M. de la Hire, in his *Dialling*, printed in 1683, a geometrical method of drawing hour-lines from certain points determined by observation. Eberhardus Welperus, in 1625, published his *Dialling*, wherein he lays down a method of drawing the primary dials on a very easy foundation. The same foundation is described at length by Sebastian Munster, in his *Rudimenta Mathematica*, published in 1551. Sturmius, in 1672, published a new edition of Welperus's *Dialling*, with the addition of a whole second part, about inclining and declining dials, &c. In 1708, the same work, with Sturmius's additions, was republished; with the addition of a fourth part, containing Picard's and de la Hire's methods of drawing large dials. Paterfon, Michael, and Muller, have each wrote on dialling in the German tongue; Coetfius in his *Horologiographia Plana*, printed in 1689; Gaupennius, in his *Gnomonica Mechanica*; Bion, in his *Use of Mathematical Instruments*; the late ingenious Mr Ferguson, in his *Select Lectures*; Mr Emmerfon, in his *Dialling*; and Mr W. Jones, in his *Instrumental Dialling*.

3
Definitions.

A *Dial*, accurately defined, is a plane, upon which lines are described in such a manner, that the shadow of a wire, or of the upper edge of another plane, erected perpendicularly on the former, may show the true time of the day.

The edge of the plane by which the time of the day is found, is called the *stile of the dial*, which must be parallel to the earth's axis; and the line on which the said plane is erected, is called the *substile*.

The angle included between the substile and stile, is called the *elevation or height of the stile*.

Those dials whose planes are parallel to the plane of the horizon, are called *horizontal dials*; and those dials whose planes are perpendicular to the plane of the horizon, are called *vertical or erect dials*.

Those erect dials, whose planes directly front the north or south, are called *direct north or south dials*; and all other erect dials are called *decliners*, because their planes are turned away from the north or south.

Those dials whose planes are neither parallel nor perpendicular to the plane of the horizon, are called *inclining or reclining dials*, according as their planes make acute or obtuse angles with the horizon; and if their planes are also turned aside from facing the south or north, they are called *declining-inclining or declining-reclining dials*.

The intersection of the plane of the dial, with that of the meridian, passing through the stile, is called the *meridian of the dial*, or the *hour-line of XII*.

Those meridians, whose planes pass through the stile, and make angles of 15, 30, 45, 60, 75, and 90 degrees with the meridian of the place (which marks the hour-line of XII.) are called *hour-circles*; and their intersections with the plane of the dial are called *hour-lines*.

In all declining dials, the substile makes an angle with the hour-line of XII. and this angle is called the *distance of the substile from the meridian*.

The declining plane's difference of longitude, is the

angle formed at the intersection of the stile and plane of the dial, by two meridians; one of which passes through the hour-line of XII. and the other through the substile.

Thus much being premised concerning dials in general, we shall now proceed to explain the different methods of their construction.

If the whole earth $aPe\rho$ were transparent, and hollow, like a sphere of glass, and had its equator divided into 24 equal parts by so many meridians, femicircles, a, b, c, d, e, f, g , &c. one of which is the geographical meridian of any given place, as London (which is supposed to be at the point a); and if the hour of XII were marked at the equator, both upon that meridian and the opposite one, and all the rest of the hours in order on the rest of the meridians, those meridians would be the hour-circles of London: then, if the sphere had an opaque axis, as $PE\rho$, terminating in the poles P and ρ , the shadow of the axis would fall upon every particular meridian and hour, when the sun came to the plane of the opposite meridian, and would consequently show the time at London, and at all other places on the meridian of London.

If this sphere was cut through the middle by a solid plane $ABCD$, in the rational horizon of London, half of the axis EP would be above the plane, and the other half below it; and if straight lines were drawn from the centre of the plane to those points where its circumference is cut by the hour-circles of the sphere, those lines would be the hour-lines of a horizontal dial for London: for the shadow of the axis would fall upon each particular hour-line of the dial, when it fell upon the like hour-circle of the sphere.

If the plane which cuts the sphere be upright, as $AFCG$, touching the given place (London) at F , and directly facing the meridian of London, it will then become the plane of an erect direct south-dial: and if right lines be drawn from its centre E to those points of its circumference where the hour-circles of the sphere cut it, these will be the hour-lines of a vertical direct south-dial for London, to which the hours are to be set, as in the figure (contrary to those on a horizontal dial), and the lower half $E\rho$ of the axis will cast a shadow on the hour of the day in this dial, at the same time that it would fall upon the like hour-circle of the sphere, if the dial plane was not in the way.

If the plane (still facing the meridian) be made to incline or recline, any given number of degrees, the hour-circles of the sphere will still cut the edge of the plane in those points to which the hour lines must be drawn straight from the centre; and the axis of the sphere will cast a shadow on these lines at the respective hours. The like will still hold, if the plane be made to decline by any given number of degrees from the meridian towards the east or west: provided the declination be less than 90 degrees, or the reclination be less than the co-latitude of the place: and the axis of the sphere will be a gnomon or stile, for the dial. But it cannot be a gnomon, when the declination is quite 90 degrees, nor when the reclination is equal to the co-latitude; because in these two cases, the axis has no elevation above the plane of the dial.

And thus it appears, that the plane of every dial represents the plane of some great circle upon the earth; and the gnomon of the earth's axis, whether it be a

small.

Plate
CLXXI.

Fig. 1.

4
The universal principle on which dialling depends.

5
Horizontal dial.

6
Vertical dial.

7
Inclining, reclining, and declining dials.

small wire as in the above figures, or the edge of a thin plate, as in the common horizontal dials.

The whole earth, as to its bulk, is but a point, if compared to its distance from the sun; and therefore, if a small sphere of glass be placed upon any part of the earth's surface, so that its axis be parallel to the axis of the earth, and the sphere have such lines upon it, and such planes within it, as above described; it will show the hours of the day as truly as if it were placed at the earth's centre, and the shell of the earth were as transparent as glass.

But because it is impossible to have a hollow sphere of glass perfectly true, blown round a solid plane; or if it was, we could not get at the plane within the glass to set it in any given position; we make use of a wire-sphere to explain the principles of dialling, by joining 24 semicircles together at the poles, and putting a thin flat plate of brass within it.

Fig. 1. 2.

8

Dialling by the common terrestrial globe.

A common globe of 12 inches diameter has generally 24 meridian semicircles drawn upon it. If such a globe be elevated to the latitude of any given place, and turned about until one of these meridians cut the horizon in the north point, where the hour of XII is supposed to be marked, the rest of the meridians will cut the horizon at the respective distances of all the other hours from XII. Then if these points of distance be marked on the horizon, and the globe be taken out of the horizon, and a flat board or plate be put into its place, even with the surface of the horizon; and if straight lines be drawn from the centre of the board to those points of distance on the horizon which were cut by the 24 meridian semicircles; these lines will be the hour-lines of a horizontal dial for that latitude, the edge of whose gnomon must be in the very same situation that the axis of the globe was, before it was taken out of the horizon; that is, the gnomon must make an angle with the plane of the dial, equal to the latitude of the place for which the dial is made.

If the pole of the globe be elevated to the co-latitude of the given place, and any meridian be brought to the north point of the horizon, the rest of the meridians will cut the horizon in the respective distances of all the hours from XII, for a direct south dial, whose gnomon must be an angle with the plane of the dial, equal to the co-latitude of the place; and the hours must be set the contrary way on this dial to what they are on the horizontal.

But if your globe have more than 24 meridian semicircles upon it, you must take the following method for making *horizontal and south dials*.

9

To construct a horizontal dial.

Elevate the pole to the latitude of your place, and turn the globe until any particular meridian (suppose the first) comes to the north point of the horizon, and the opposite meridian will cut the horizon in the south. Then set the hour-index to the uppermost XII on its circle; which done, turn the globe westward until 15 degrees of the equator pass under the brazen meridian, and then the hour index will be at I (for the sun moves 15 degrees every hour), and the first meridian will cut the horizon in the number of degrees from the north point that I is distant from XII. Turn on until other 15 degrees of the equator pass under the brazen meridian, and the hour index will then be at II, and the first meridian will cut the horizon in the number of degrees that II is di-

stant from XII: and so by making 15 degrees of the equator pass under the brazen meridian for every hour, the first meridian of the globe will cut the horizon in the distances of all the hours from XII to VI, which is just 90 degrees; and then you need go no farther, for the distances of XI, X, IX, VIII, VII, and VI, in the forenoon, are the same from XII as the distances of I, II, III, IV, V, and VI, in the afternoon: and these hour-lines continued through the centre, will give the opposite hour-lines on the other half of the dial.

Thus, to make a horizontal dial for the latitude of London, which is $51\frac{1}{2}$ degrees north, elevate the north pole of the globe $51\frac{1}{2}$ degrees above the north point of the horizon; and then turn the globe, until the first meridian (which is that of London on the English terrestrial globe) cuts the north point of the horizon, and set the hour-index to XII at noon.

Then turning the globe westward until the index points successively to I, II, III, IV, V, and VI, in the afternoon, or until 15, 30, 45, 60, 75, and 90 degrees of the equator pass under the brazen meridian, you will find that the first meridian of the globe cuts the horizon in the following number of degrees from the north towards the east, viz. $11\frac{2}{3}$, $24\frac{1}{4}$, $38\frac{1}{3}$, $53\frac{1}{2}$, $71\frac{1}{3}$, and 90; which are the respective distances of the above hours from XII upon the plane of the horizon.

To transfer these, and the rest of the hours, to a horizontal plane, draw the parallel right lines *ac* and *db*, upon the plane, as far from each other as is equal to the intended thickness of the gnomon or stile of the dial, and the space included between them will be the meridian or twelve o'clock line on the dial. Cross this meridian at right angles with the six o'clock line *gh*, and setting one foot of your compasses in the intersection *a*, as a centre, describe the quadrant *ge* with any convenient radius or opening of the compasses: then, setting one foot in the intersection *b*, as a centre, with the same radius describe the quadrant *fb*, and divide each quadrant into 90 equal parts or degrees, as in the figure.

Because the hour-lines are less distant from each other about noon, than in any other part of the dial, it is best to have the centres of these quadrants at a little distance from the centre of the dial plane, on the side opposite to XII, in order to enlarge the hour-distances thereabouts, under the same angles on the plane. Thus the centre of the plane is at *C*, but the centres of the quadrants are at *a* and *b*.

Lay a ruler over the point *b* (and keeping it there for the centre of all the afternoon hours in the quadrant *fb*) draw the hour-line of I through $11\frac{2}{3}$ degrees in the quadrant; the hour-line of II, through $24\frac{1}{4}$ degrees; of III, through $38\frac{1}{3}$ degrees; IIII, through $53\frac{1}{2}$; and V, through $71\frac{1}{3}$: and because the sun rises about four in the morning, on the longest days at London, continue the hour-lines of IIII and V in the afternoon through the centre *b* to the opposite side of the dial.— This done, lay the ruler to the centre *a* of the quadrant *eg*; and through the like divisions or degrees of that quadrant, viz. $11\frac{2}{3}$, $24\frac{1}{4}$, $38\frac{1}{3}$, $53\frac{1}{2}$, and $71\frac{1}{3}$, draw the forenoon hour-lines of XI, X, IX, VIII, and VII; and because the sun sets not before eight in the evening on the longest days, continue the hour lines of VII and VIII in the forenoon, through the centre *a*, to VII.

Fig. 3.

VII and *VIII* in the afternoon; and all the hour-lines will be finished on this dial; to which the hours may be set, as in the figure.

Lastly, through $51\frac{1}{2}$ degrees of either quadrant, and from its centre, draw the right line *ag* for the hypotenuse or axis of the gnomon *agi*; and from *g*, let fall the perpendicular *gi*, upon the meridian line *ai*, and there will be a triangle made, whose sides are *ag*, *gi*, and *ia*. If a plate similar to this triangle be made as thick as the distance between the lines *ac* and *bd*, and set upright between them, touching at *a* and *b*, its hypotenuse *ag* will be parallel to the axis of the world, when the dial is truly set; and will cast a shadow on the hour of the day.

N. B. The trouble of dividing the two quadrants may be saved if you have a scale with a line of chords upon it (as represented in the plate); for if you extend the compasses from 0 to 60 degrees of the line of chords, and with that extent, as a radius, describe the two quadrants upon their respective centres, the above distances may be taken with the compasses upon the lines, and set off upon the quadrants.

Fig. 4.
10
An erect
south dial.

To make an erect direct south dial. Elevate the pole to the co-latitude of your place, and proceed in all respects as above taught for the horizontal dial, from *VI* in the morning to *VI* in the afternoon; only the hours must be reversed as in the figure; and the hypotenuse *ag* of the gnomon *agf*, must make an angle with the dial-plane equal to the co-latitude of the place. As the sun can shine no longer on this dial than from six in the morning until six in the evening, there is no occasion for having any more than 12 hours upon it.

11
Erect de-
clining
dial.

To make an erect dial, declining from the south towards the east or west. Elevate the pole to the latitude of your place, and screw the quadrant of altitude to the zenith. Then, if your dial declines towards the east (which we shall suppose it to do at present), count in the horizon the degrees of declination, from the east point towards the north, and bring the lower end of the quadrant to that degree of declination at which the reckoning ends. This done, bring any particular meridian of your globe (as suppose the first meridian) directly under the graduated edge of the upper part of the brazen meridian, and set the hour to *XII* at noon. Then, keeping the quadrant of altitude at the degree of declination in the horizon, turn the globe eastward on its axis, and observe the degrees cut by the first meridian in the quadrant of altitude (counted from the zenith) as the hour-index comes to *XI*, *X*, *IX*, &c. in the forenoon, or as 15, 30, 45, &c. degrees of the equator pass under the brazen meridian at these hours respectively; and the degrees then cut in the quadrant by the first meridian, are the respective distances of the forenoon hours from *XII* on the plane of the dial.—Then, for the afternoon hours, turn the quadrant of altitude round the zenith, until it comes to the degree in the horizon opposite to that where it was placed before; namely, as far from the west point of the horizon towards the south, as it was set at first from the east point towards the north; and turn the globe westward on its axis, until the first meridian comes to the brazen meridian again, and the hour-index to *XII*: then, continue to turn the globe westward; and as the index points to the afternoon hours *I*, *II*, *III*, &c. or

as 15, 30, 45, &c. degrees of the equator pass under the brazen meridian, the first meridian will cut the quadrant of altitude in the respective number of degrees from the zenith that each of these hours is from *XII* on the dial.—And note, that when the first meridian goes off the quadrant at the horizon in the afternoon, the hour-index shows the time when the sun will come upon this dial; and when it goes off the quadrant in the afternoon, the index will point to the time when the sun goes off the dial.

Having thus found all the hour-distances from *XII*, lay them down upon your dial-plane, either by dividing a semicircle into two quadrants of 90 degrees each (beginning at the hour-line of *XII*), or by the line of chords, as above directed.

In all declining dials, the line on which the stile or gnomon stands (commonly called the *substile-line*) makes an angle with the twelve o'clock line, and falls among the forenoon hour-lines, if the dial declines towards the east; and among the afternoon hour-lines, when the dial declines towards the west; that is, to the left hand from the twelve o'clock line in the former case, and to the right hand from it in the latter.

To find the distance of the substile from the twelve o'clock line; if your dial declines from the south towards the east, count the degrees of that declination in the horizon from the east point towards the north, and bring the lower end of the quadrant of altitude to that degree of declination where the reckoning ends: then turn the globe until the first meridian cuts the horizon in the like number of degrees, counted from the south point towards the east; and the quadrant and first meridian will then cross one another at right angles; and the number of degrees of the quadrant, which are intercepted between the first meridian and the zenith, is equal to the distance of the substile line from the twelve o'clock line; and the number of degrees of the first meridian, which are intercepted between the quadrant and the north pole, is equal to the elevation of the stile above the plane of the dial.

If the dial declines westward from the south, count that declination from the east point of the horizon towards the south, and bring the quadrant of altitude to the degree in the horizon at which the reckoning ends; both for finding the forenoon hours and distance of the substile from the meridian: and for the afternoon hours, bring the quadrant to the opposite degree in the horizon, namely, as far from the west towards the north, and then proceed in all respects as above.

Thus we have finished our declining dial; and in so doing we made four dials, viz.

1. A north dial, declining eastward by the same number of degrees. 2. A north dial, declining the same number west. 3. A south dial, declining east. And, 4. A south dial, declining west. Only, placing the proper number of hours, and the stile or gnomon respectively, upon each plane. For (as above-mentioned) in the south-west plane, the substilar-line falls among the afternoon hours; and in the south-east, of the same declination, among the forenoon hours, at equal distances from *XII*. And so all the morning hours on the west decliner will be like the afternoon hours on the east decliner: the south-east decliner will produce the north-west decliner; and the south-west decliner the north-east decliner, by only extending the hour-lines

hour-lines, stile and substile, quite through the centre : the axis of the stile (or edge that casts the shadow on the hour of the day) being in all dials whatever parallel to the axis of the world, and consequently pointing towards the north pole of the heaven in north latitudes, and towards the south pole in south latitudes.

12
An easy method for constructing of dials.

But because every one who would like to make a dial, may perhaps not be provided with a globe to assist him, and may probably not understand the method of doing it by logarithmic calculation ; we shall show how to perform it by the plain dialing lines, or scale of latitudes and hours (as represented on the Plate), and which may be had on scales commonly sold by the mathematical-instrument-makers.

This is the easiest of all mechanical methods, and by much the best, when the lines are truly divided : and not only the half-hours and quarters may be laid down by all of them, but every fifth minute by most, and every single minute by those where the line of hours is a foot in length.

Fig. 5.

Having drawn your double meridian line *ab, cd*, on the plane intended for a horizontal dial, and crossed it at right angles by the six o'clock line *fe* (as in fig. 3.), take the latitude of your place with the compasses, in the scale of latitudes, and set that extent from *c* to *e*, and from *a* to *f*, on the six o'clock line : then, taking the whole six hours between the points of the compasses in the scale of hours, with that extent set one foot in the point *c*, and let the other foot fall where it will upon the meridian line *cd*, as at *d*. Do the same from *f* to *b*, and draw the right lines *ed* and *fb*, each of which will be equal in length to the whole scale of hours. This done, setting one foot of the compasses in the beginning of the scale at *XII*, and extending the other to each hour of the scale, lay off these extents from *d* to *e* for the afternoon hours, and from *b* to *f* for those of the forenoon : this will divide the lines *de* and *bf* in the same manner as the hour-scale is divided at 1, 2, 3, 4, and 6 ; on which the quarters may also be laid down, if required. Then, laying a ruler on the point *c*, draw the first five hours in the afternoon, from that point, through the dots at the numeral figures, 1, 2, 3, 4, 5, on the line *de* ; and continue the lines of *IIII* and *V* through the centre *c* to the other side of the dial, for the like hours of the morning : which done, lay the ruler on the point *a*, and draw the last five hours in the forenoon through the dots, 5, 4, 3, 2, 1, on the line *fb* ; continuing the hour-lines of *VII* and *VIII* through the centre *a* to the other side of the dial, for the like hours of the evening ; and set the hours to their respective lines, as in the figure. Lastly, make the gnomon the same way as taught above for the horizontal dial, and the whole will be finished.

To make an erect south dial ; take the co-latitude of your place from the scale of latitudes, and then proceed in all respects for the hour-line as in the horizontal dial ; only reversing the hours, as in fig. 4. and making the angle of the stile's height equal to the co-latitude.

But, lest the young diallist should have neither globe nor wooden scale, we shall now show him how he may make a dial without any of these helps. Only, if he has not a line of chords, he must divide a quadrant in-

to 90 equal parts or degrees for taking the proper angle of the stile's elevation ; which is easily done.

With any opening of the compasses, as *ZL*, de-

Fig. 6.

scribe the two semicircles *LFk* and *LQk*, upon the centres *Z* and *z*, where the six o'clock line crosses the double meridian line, and divide each semicircle into 12 equal parts, beginning at *L* (though, strictly speaking, only the quadrants from *L* to the six o'clock line need be divided) ; then connect the divisions which are equidistant from *L*, by the parallel lines *KM*, *IN*, *HO*, *GP*, and *FQ*. Draw *VZ* for the hypotenuse of the stile, making the angle *VZE* equal to the latitude of your place ; and continue the line *VZ* to *R*. Draw the line *Rr* parallel to the six o'clock line ; and set off the distance *aK* from *Z* to *Y*, the distance *bI* from *Z* to *X*, *cH* from *Z* to *W*, *dG* from *Z* to *T*, and *eF* from *Z* to *S*. Then draw the lines *Ss*, *Tt*, *Ww*, *Xx*, and *Yy*, each parallel to *Rr*. Set off the distance *yY* from *a* to *11*, and from *f* to *1* ; the distance *xX* from *b* to *10*, and from *g* to *2* ; *wW* from *c* to *9*, and from *h* to *3* ; *tT* from *d* to *8*, and from *i* to *4* ; *sS* from *e* to *7*, and from *n* to *5*. Then laying a ruler to the centre *Z*, draw the forenoon hour-lines through the points *11*, *10*, *9*, *8*, *7* ; and laying it to the centre *z*, draw the afternoon lines through the points *1*, *2*, *3*, *4*, *5* ; containing the forenoon lines of *VII* and *VIII* through the centre *Z*, to the opposite side of the dial, for the like afternoon hours ; and the afternoon lines *IIII* and *V* through the centre *z*, to the opposite side, for the like morning hours. Set the hours to these lines as in the figure, and then erect the stile or gnomon, and the horizontal dial will be finished.

13
Horizontal dial.

To construct a south dial, draw the line *VZ*, making an angle with the meridian *ZL* equal to the co-latitude of your place ; and proceed in all respects as in the above horizontal dial for the same latitude, reversing the hours as in fig. 4. and making the elevation of the gnomon equal to the co-latitude.

Perhaps it may not be unacceptable to explain the method of constructing the dialling lines, and some others ; which is as follows :

With any opening of the compasses, as *EA*, according to the intended length of the scale, describe the circle *ADCB*, and cross it at right angles by the diameters *CEA* and *DEB*. Divide the quadrant *AB* first into 9 equal parts, and then each part into 10 ; so shall the quadrant be divided into 90 equal parts or degrees. Draw the right line *AFB* for the chord of this quadrant ; and setting one foot of the compasses in the point *A*, extend the other to the several divisions of the quadrant, and transfer these divisions to the line *AFB* by the arcs 10, 10, 20, 20, &c. and this will be a line of chords, divided into 90 unequal parts ; which, if transferred from the line back again to the quadrant, will divide it equally. It is plain by the figure that the distance from *A* to 60 in the line of chords, is just equal to *AE*, the radius of the circle from which that line is made ; for if the arc 60, 60, be continued, of which *A* is the centre, it goes exactly through the centre *E* of the arc *AB*.

14
Dialling lines, how constructed.
Fig. 7.

And therefore, in laying down any number of degrees on a circle, by the line of chords, you must first open the compasses so as to take in just 60 degrees upon

D I A L L I N G.

upon that line as from A to 60: and then, with that extent, as a radius, describe a circle, which will be exactly of the same size with that from which the line was divided: which done, set one foot of the compasses in the beginning of the chord line, as at A, and extend the other to the number of degrees you want upon the line; which extent, applied to the circle, will include the like number of degrees upon it.

Divide the quadrant CD into 90 equal parts, and from each point of division draw right lines, as *ikl*, &c. to the line CE, all perpendicular to that line, and parallel to DE, which will divide EC into a line of fines: and although these are seldom put among the dialling lines on a scale, yet they assist in drawing the line of latitudes. For if a ruler be laid upon the point D, and over each division in the line of fines, it will divide the quadrant CB into 90 unequal parts, as *Ba*, *Bb*, &c. shown by the right lines *10a*, *20b*, *30c*, &c. drawn along the edge of the ruler. If the right line BC be drawn, subtending this quadrant, and the nearest distances *Ba*, *Bb*, *Bc*, &c. be taken in the compasses from B, and set upon this line in the same manner as directed for the line of chords, it will make a line of latitudes BC, equal in length to the line of chords AB, and of an equal number of divisions, but very unequal as to their lengths.

Draw the right line DGA, subtending the quadrant DA; and parallel to it, draw the right line *rs*, touching the quadrant DA at the numeral figure 3. Divide this quadrant into six equal parts, as 1, 2, 3, &c. and through these points of division draw right lines from the centre E to the line *rs*, which will divide it at the points where the six hours are to be placed, as in the figure. If every sixth part of the quadrant be subdivided into four equal parts, right lines drawn from the centre through these points of division, and continued to the line *rs*, will divide each hour upon it into quarters.

Fig. 8.
15
A dial on a
card.

In fig. 8. we have the representation of a portable dial, which may be easily drawn on a card, and carried in a pocket-book. The lines *ad*, *ab*, and *bc* of the gnomon, must be cut quite through the card; and as the end *ab* of the gnomon is raised occasionally above the plane of the dial, it turns upon the uncut line *cd* as on a hinge. The dotted line AB must be slit quite through the card, and the thread C must be put through the slit, and have a knot tied behind, to keep it from being easily drawn out. On the other end of this thread is a small plummet D, and on the middle of it a small bead for showing the hour of the day.

To rectify this dial, set the thread in the slit right against the day of the month, and stretch the thread from the day of the month over the angular point where the curve lines meet at XII; then shift the bead to that point on the thread, and the dial will be rectified.

To find the hour of the day, raise the gnomon (no matter how much or how little) and hold the edge of the dial next the gnomon towards the sun, so as the uppermost edge of the shadow of the gnomon may just cover the *shadow-line*; and the bead then playing freely on the face of the dial, by the weight of the plummet, will show the time of the day among the hour-lines, as it is forenoon or afternoon.

To find the time of sun-rising and setting, move the

thread among the hour-lines, until it either covers some one of them, or lies parallel betwixt any two; and then it will cut the time of sun-rising among the forenoon hours, and of sun-setting among the afternoon hours, for that day of the year to which the thread is set in the scale of months.

To find the sun's declination, stretch the thread from the day of the month over the angular point at XII, and it will cut the sun's declination, as it is north or south, for that day, in the proper scale.

To find on what days the sun enters the signs, when the bead, as above rectified, moves' along any of the curve-lines which have the signs of the zodiac marked upon them, the sun enters those signs on the days pointed out by the thread in the scale of months.

The construction of this dial is very easy, especially if the reader compares it all along with fig. 9. Plate CLXXII as he reads the following explanation of that figure.

Draw the occult line AB (fig. 9.) parallel to the top of the card, and cross it at right angles with the six o'clock line ECD; then upon C, as a centre, with the radius CA, describe the semicircle AEL, and divide it into 12 equal parts (beginning at A), as A *r*, A *s*, &c. and from these points of division draw the hour-lines *r*, *s*, *t*, *u*, *v*, E, *w*, and *x*, all parallel to the six o'clock line EC. If each part of the semicircle be subdivided into four equal parts, they will give the half-hour-lines and quarters, as in fig. 2. Draw the right line ASD *o*, making the angle SAB equal to the latitude of your place. Upon the centre A describe the arch RST, and set off upon it the arcs SR and ST, each equal to $23\frac{1}{2}$ degrees, for the sun's greatest declination; and divide them into $23\frac{1}{2}$ equal parts, as in fig. 2. Through the intersection D of the lines ECD and AD *o*, draw the right line FDG at right angles to AD *o*. Lay a ruler to the points A and R, and draw the line ARF through $23\frac{1}{2}$ degrees of south declination in the arc SR; and then laying the ruler to the points A and T, draw the line ATG through $23\frac{1}{2}$ degrees of north declination in the arc ST: so shall the lines ARF and ATG cut the line FDG in the proper lengths for the scale of months. Upon the centre D, with the radius DF, describe the semicircle FOG; which divide into six equal parts, F*m*, *mn*, *no*, &c. and from these points of division draw the right lines *mb*, *ni*, *pk*, and *ql*, each parallel to *oD*. Then setting one foot of the compasses in the point F, extend the other to A, and describe the arc AZH for the tropic of $13\frac{1}{2}$: with the same extent, setting one foot in G, describe the arc AEO for the tropic of 20 . Next setting one foot in the point *h*, and extending the other to A, describe the arc ACI for the beginnings of the signs ♈ and ♉ ; and with the same extent, setting one foot in the point *l*, describe the arc AN for the beginnings of the signs ♊ and ♋ . Set one foot in the point *i*, and having extended the other to A, describe the arc AK for the beginnings of the signs ♌ and ♍ ; and with the same extent, set one foot in *k*, and describe the arc AM for the beginnings of the signs ♎ and ♏ . Then setting one foot in the point D, and extending the other to A, describe the curve AL for the beginnings of ♐ and ♑ ; and the signs will be finished. This done, lay a ruler from the point A over the sun's declination in the arch RST; and where the ruler cuts the line FDG, make marks:

Plate
CLXXII.

Fig. 9. com-
arc ACI for the beginnings of the signs ♈ and ♉ ; with the same extent, setting one foot in the point *l*, describe the arc AN for the beginnings of the signs ♊ and ♋ .

marks: and place the days of the months right against these marks, in the manner shown by fig. 2. Lastly, draw the shadow line PQ parallel to the occult line AB; make the gnomon, and set the hours to their respective lines, as in fig. 2. and the dial will be finished.

16
Universal
dials.

Plate
CLXXII.

There are several kinds of dials called *universal*, because they serve for all latitudes. One, of Mr Pardie's construction, was formerly considered as the best. It consists of three principal parts; the first whereof is called the horizontal plane, A fig. 10. because in practice it must be parallel to the horizon. In this plane is fixed an upright pin, which enters into the edge of the second part BD, called the meridional plane; which is made of two pieces, the lowest whereof B is called the *quadrant*, because it contains a quarter of a circle, divided into 90 degrees; and it is only into this part, near B, that the pin enters. The other piece is a semicircle D adjusted to the quadrant, and turning in it by a groove, for raising or depressing the diameter EF of the semicircle, which diameter is called the *axis of the instrument*. The third piece is a circle G, divided on both sides into 24 equal parts, which are the hours. This circle is put upon the meridional plane so that the axis EF may be perpendicular to the circle, and the point C be the common centre of the circle, semicircle, and quadrant. The straight edge of the semicircle is chamfered on both sides to a sharp edge, which passes through the centre of the circle. On one side of the chamfered part, the first six months of the year are laid down, according to the sun's declination for their respective days, and on the other side the last six months. And against the days on which the sun enters the signs, there are straight lines drawn upon the semicircle, with the characters of the signs marked upon them. There is a black line drawn along the middle of the upright edge of the quadrant, over which hangs a thread H, with its plummet I, for levelling the instrument. *N. B.* From the 23d of September to the 20th of March, the upper surface of the circle must touch both the centre C of the semicircle, and the line of ♈ and ♎; and from the 20th of March to the 23d of September, the lower surface of the circle must touch that centre and line.

To find the time of the day by this dial. Having set it on a level place in sunshine, and adjusted it by the levelling screws k and l, until the plumb-line hangs over the back line upon the edge of the quadrant, and parallel to the said edge; move the semicircle in the quadrant, until the line of ♈ and ♎ (where the circle touches) comes to the latitude of your place in the quadrant: then turn the whole meridional plane BD, with its circle G, upon the horizontal plane A, until the edge of the shadow of the circle fall precisely on the day of the month in the semicircle; and then the meridional plane will be due north and south, the axis EF will be parallel to the axis of the world and will cast a shadow upon the true time of the day among the hours on the circle.

N. B. As, when the instrument is thus rectified, the quadrant and semicircle are in the plane of the meridian, so the circle is then in the plane of the equinoctial. Therefore, as the sun is above the equinoctial in summer (in northern latitudes), and below it in winter; the axis of the semicircle will cast a shadow on the

Vol. VII. Part I.

hour of the day, on the upper surface of the circle, from the 20th of March till the 23d of September; and from the 23d of September to the 20th of March, the hour of the day will be determined by the shadow of the semicircle upon the lower surface of the circle. In the former case, the shadow of the circle falls upon the day of the month, on the lower part of the diameter of the semicircle; and in the latter case, on the upper part.

The method of laying down the months and signs upon the semicircle is as follows: Draw the right line ACB, fig. 11. equal to the diameter of the semicircle ADB, and cross it in the middle at right angles with the line ECD, equal in length to ADB; then EC will be the radius of the circle FCG, which is the same as that of the semicircle. Upon E, as a centre, describe the circle FCG, on which set off the arcs Cb and Ci, each equal to $23\frac{1}{2}$ degrees, and divide them accordingly into that number for the sun's declination. Then laying the edge of a ruler over the centre E, and also over the sun's declination for every fifth day of each month (as in the card-dial), mark the points on the diameter AB of the semicircle from a to g, which are cut by the ruler; and there place the days of the months accordingly, answering to the sun's declination. This done, setting one foot of the compasses in C, and extending the other to a or g, describe the semicircle abcdefg; which divide into six equal parts, and through the points of division draw right lines parallel to CD, for the beginning of the sines (of which one half are on one side of the semicircle, and the other half on the other), and set the characters of the sines to their proper lines, as in the figure.

An universal dial, of a very ingenious construction, has lately been invented by Mr G. Wright of London. The hour-circle or arch E (fig. 19.), and latitude arch C, are the portions of two meridian circles; one fixed, and the other moveable. The hour or dial-plate SEN at top is fixed to the arch C, and has an index that moves with the hour-circle E; therefore the construction of this dial is perfectly similar to the construction of the meridians and hour-circle upon a common globe. The peculiar problems to be performed by this instrument are, 1. *To find the latitude of any place.* 2. *The latitude of the place being known, to find the time by the sun and stars.* 3. *To find the sun or star's azimuth and altitude.*

17
A new one
by Mr G.
Wright.
Plate
CLXXXIII.

Previous to use, this instrument should be in a well-adjusted state: to perform which, you try the levels of the horizontal plates Aa, by first turning the screws BBBB till the bubbles of air on the glass tubes of the spirit-levels (which levels are at right angles to each other) are central or in the middle, and remain so when you turn the upper plate A half round its centre; but if they should not keep so, there are small screws at the end of each level, which admit of being turned one way or the other as may be requisite, till they are so. The plates Aa being thus made horizontal, set the latitude arch or meridian C steadily between the two grooved sides that hold it (one of which is seen at D) by the screw behind. On this side D is divided the nonius or vernier, corresponding with the divisions on the latitude arch C, and which may be subdivided into 5 minutes of a degree, and even less if required. The latitude arch C is to be so placed in D, that the

C c

pole

pole M may be in a vertical position; which is done by making 90° on the arch at bottom coincide with the 0 of the nonius. The arch is then fixed by the tightening screw at the back of D. Hang a silken plumb-line on the hook at G; which line is to coincide with a mark at the bottom of the latitude arch at H, all the while you move the upper plate A round its centre. If it does not so, there are four screws to regulate this adjustment, two of which pass through the base I into the plate A; the other two screws fasten the nonius piece D together; which when unscrewed a thread or two, the nonius piece may be easily moved to the right or left of 90° as may be found requisite.

Prob. 1. *To find the latitude of the place.* Fasten the latitude and hour circles together, by placing the pin K into the holes; slide the nonius piece E on the hour-circle to the sun's declination for the given day: the sun's declination you may know in the ephemeris by White, or other almanacks, for every day in the year. The nonius piece E must be set on that portion of the hour-circle marked ND or SD, according as the sun has north or south declination. About 20 minutes or a quarter of an hour before noon, observe the sun's shadow or spot that passes through the hole at the axis O, and gently move the latitude arch C down in its groove at D, till you observe the spot exactly fall on the cross line on the centre of the nonius piece at L; and by the falling of this spot, so long as you observe the sun to increase in altitude, you depress the arch C: but at the instant of its stationary appearance the spot will appear to go no lower; then fix the arch by the screw at the back of D, and the degrees thereby cut by the nonius on the arch will be the latitude of the place required: if great exactness is wanted, allowance should be made for the refraction of the atmosphere, taken from some nautical or astronomical treatise.

Prob. 2. *The latitude of the place being given, to find the time by the sun or stars.* From an ephemeris, as before, you find the sun's declination for the day north or south, and set the nonius piece E on the arch accordingly. Set the latitude arch C, by the nonius at D, to the latitude of the place; and place the magnifying glass at M, by which you will very correctly set the index carrying a nonius to the upper XII at S. Take out the pin K, slacken the horizontal screw N, and gently move, either to the right or left as you see necessary, the hour-circle E, at the same time with the other hand moving the horizontal plate A round its axis to the right and left, till the latitude arch C fall into the meridian; which you will know by the sun's spot falling exactly in the centre of the nonius piece, or where the lines intersect each other. The time may be now read off exactly to a minute by the nonius on the dial-plate at top, and which will be the time required. The horizontal line drawn on the nonius piece L, not seen in the figure, being the parallel of declination, or path that the sun-dial makes, it therefore can fall on the centre of that line at no other time but when the latitude arch C is in the meridian, or due north and south. Hence the hour-circle, on moving round with the pole, must give the true time on the dial-plate at top. There is a hole to the right, and cross hairs to the left, of the centre axis hole O, where the sun's rays pass through; whence

the sun's shadow or spot will also appear on the right and left of the centre on the nonius piece L, the holes of which are occasionally used as sights to observe through. If the sun's rays are too weak for a shadow, a dark glass to screen the eye is occasionally placed over the hole. The most proper time to find a true meridian is three or four hours before or after noon; and take the difference of the sun's declination from noon at the time you observe. If it be the morning, the difference is that and the preceding day; if afternoon, that and the following day; and the meridian being once found exact, the hour-circle E is to be brought into this meridian, a fixed place made for the dial, and an object to observe by it also fixed for it at a great distance. The sights LO must at all times be directed against this fixed object, to place the dial truly in the meridian, proper for observing the planets, moon, or bright stars, by night.

Prob. 3. *To find the sun's azimuth and altitude.* The latitude arch C being in the meridian, bring the pole M into the zenith, by setting the latitude arch to 90° . Fasten the hour-circle E in the meridian by putting in the pin K; fix the horizontal plates by the screw N; and set the index of the dial-plate to XII, which is the south point: Now take out the pin K, and gently move the hour-circle E; leaving the latitude arch fixed, till the sun's rays or spot passing through the centre hole in the axis O fall on the centre line of the hour-circle E, made for that purpose. The azimuth in time may be then read off on the dial-plate at top by the magnifying glass. This time may be converted into degrees, by allowing at the rate of 15 for every hour. By sliding the nonius piece E, so that the spot shall fall on the cross line thereon, the altitude may be taken at the same time if it does not exceed 45 degrees. Or the altitude may be taken more universally, by fixing the nonius piece E to the 0 on the divisions, and sliding down the latitude-arch in such a manner in the groove at D, till the spot falls exactly on the centre of the nonius E. The degrees and minutes then shown by the nonius at D, taken from 90, will be the altitude required. By looking through the sight-holes LO, the altitude of the moon, planets, and stars, may be easily taken. Upon this principle it is somewhat adapted for levelling also; by lowering the nonius piece E, equal altitudes of the sun may be had; and by raising it higher, equal depressions.

More completely to answer the purposes of a good theodolite, of levelling, and the performance of problems in practical astronomy, trigonometry, &c. the horizontal plate D is divided into 360° , and an opposite nonius on the upper plate A, subdividing the degrees into 5 or more minutes. A telescope and spirit-level applies on the latitude arch at HG by two screws, making the latitude arch a vertical arch; and the whole is adapted to triangular staffs with parallel plates, similar to those used with the best theodolites.

A dial more universal for the performance of problems than the above, though in some particulars not so convenient and accurate, has been invented by some instrument-makers. It consists of the common equatorial circles reduced to a portable size, and instead of a telescope carries a plain sight. Its principal parts consist of the sight-piece OP, fig. 20. moveable over the declination's semicircle D. It has a nonius Q to the semicircle.

femicircle. A dark glass to screen the eye applies occasionally over either of the holes at O; these holes on the inner side of the piece are intersected by cross lines, as seen in the figure below; and to the sight P two pieces are screwed, the lower having a small hole for the sun's rays or shadow, and the upper two cross hairs or wires.

The declination circle or arch D is divided into two, 90° each; and is fixed perpendicularly on a circle with a chamfered edge, containing a nonius division that subdivides into single minutes the under equatorial circle MN, which in all cases represents the equator, and is divided into twice 12 hours, and each hour into five minutes. At right angles below this equatorial circle is fixed the femicircle of altitude AB, divided into two quadrants of 90° each. This arch serves principally to measure angles of altitude and depression; and it moves centrally on an upright pillar fixed in the horizontal circle EF. This circle EF is divided into four quadrants of 90° each, and against it there is fixed a small nonius plate at N. The horizontal circle may be turned round its centre or axis; and two spirit levels LL are fixed on it at right angles to one another.

We have not room to detail the great variety of astronomical and trigonometrical problems that may be solved by this general instrument, which is described in Jones's "Instrumental Dialling." One example connected with our present purpose may here suffice, viz. *To find the time when the latitude is given.* Supposing the instrument to be well adjusted by the directions hereafter given: The meridian of the place should be first obtained to place the instrument in, which is settled by a distant mark, or particular cavities to receive the screws at IGH, made in the base it stands on. The meridian is best found by equal altitudes of the sun. In order to take these, you set the middle mark of the nonius on the declination arch D at o, and fix it by the screw behind; then set the horary or hour circle to XII. The circle EF being next made horizontal, you direct the sights to the sun, by moving the horizontal circle EF and altitude femicircle AB: the degrees and minutes marked by the nonius on the latter will be the altitude required. To take equal altitudes, you observe the sun's altitude in the morning two or three hours before noon by the femicircle AB: leave the instrument in the same situation perfectly unaltered till the afternoon, when, by moving the horizontal circle EF, only find the direction of the sight or the sun's spot to be just the same, which will be an equal altitude with the morning. The place of the horizontal circle EF against the nonius at each time of observation is to be carefully noted; and the middle degree or part between each will be the place where the femicircle AB, and sight OP, will stand or coincide with, when directed to the south or north, according to the sun's situation north or south at noon at the place of observation. Set the index, or sight-piece OP, very accurately to this middle point, by directing the sight to some distant object; or against it, let one be placed up; this object will be the meridian mark, and will always serve at any future time. To find the time, the meridian being thus previously known by equal altitudes of the sun (or star), and determined by the meridian mark made at a distance, or by the cavities in the base to set the screw in: Place the equatorial accordingly,

and level the horizontal circle EF by the spirit-levels thereon. Set the femicircle AB to the latitude of the place, and the index of the sights OP to the declination of the sun, found by the ephemeris, as before directed. Turn the femicircle D till the sight-holes are accurately directed to the sun, when the nonius on the hour-circle MN will show the time. It may easily be known when the sun's rays are direct through, by the spot falling on the lower intersectors of the marks across the hole at O. See the figure S adjoining.

The adjustments of this equatorial dial are to be made from the following trials. 1st, To adjust the levels LL on EF: Place the o of any of the divisions on EF to the middle mark or stroke on the nonius at N; bring the air-bubbles in the levels in the centres of each case, by turning the several screws at IGH: this being exactly done, turn the circle EF two 90° or half round: if the bubble of air then remains in the centre, they are right, and properly adjusted for use; but if they are not, you make them so by turning the necessary screws placed for that purpose at the ends of the level-cases by means of a turn-screw, until you bring them to that fixed position, that they will return when the plate EF is turned half round. 2dly, To adjust the line of sight OP: Set the nonius to o on the declination arch D, the nonius on the hour-circle to VI, and the nonius on the femicircle AB to 90° . Direct to some part of the horizon where there may be a variety of fixed objects. Level the horizontal circle EF by the levels LL, and observe any object that may appear on the centre of the cross wires. Reverse the femicircle AB, viz. so that the opposite 90° of it be applied to the nonius, observing particularly that the other nonii preserve their situation. If then the remote object formerly viewed still continues in the centre of the cross wires, the line of sight OP is truly adjusted; but if not, unscrew the two screws of the frame carrying the cross wires, and move the frame till the intersection appears against another or new object, which is half way between the first and that which the wires were against on the reversion. Return the femicircle AB to its former position: when, if the intersection of the wires be found to be against the half-way object, or that to which they were last directed, the line of sight is adjusted; if not, the operation of observing the interval of the two objects, and applying half way, must be repeated.

It is necessary to observe, that one of the wires should be in the plane of the declination circle, and the other wire at right angles; the frame containing the wires is made to shift for that purpose.

The hole at P which forms the sun's spot is also to be adjusted by directing the sight to the sun, that the centre of the shadow of the cross hairs may fall exactly on the upper hole; the lower frame with the hole is then to be moved till the spot falls exactly on the lower sight hole.

Lastly, it is generally necessary to find the correction always to be applied to the observations by the femicircle of altitude AB. Set the nonius to o on the declination arch D, and the nonius to XII on the equator or hour circle: Turn the sight to any fixed and distinct object, by moving the arch AB and circle EF only: Note the degree and minute of the angle of altitude or depression: Reverse the declination femi-

circle by placing the nonius on the hour-circle to the opposite *XII*: Direct the sight to the same object again as before. If the altitude or depression now given be the same as was observed in the former position, no correction is wanted; but if not the same, half the difference of the two angles is the correction to be added to all observations or rectifications made with that quadrant by which the least angle was taken, or to be subtracted from all observations made with the other quadrant. These several adjustments are absolutely necessary previous to the use of the instrument; and when once well done, will keep so, with care, a considerable time.

19
Universal
Ring-dial.
Fig. 21, 22,
23.
Plate
GLXXXIII.

The *Universal* or *Astronomical Equinoctial Ring-Dial*, is an instrument of an old construction, that also serves to find the hour of the day in any latitude of the earth (see fig. 21.). It consists of two flat rings or circles, usually from 4 to 12 inches diameter, and of a moderate thickness; the outward ring *AE* representing the meridian of the place it is used at, contains two divisions of 90° each opposite to one another, serving to let the sliding piece *H*, and ring *G* (by which the dial is usually suspended), be placed on one side from the equator to the north pole, and on the other side to the south, according to the latitude of the place. The inner ring *B* represents the equator, and turns diametrically within the outer by means of two pivots inserted in each end of the ring at the hour *XII*.

Across the two circles is screwed to the meridian a thin pierced plate or bridge, with a cursor *C*, that slides along the middle of the bridge: this cursor has a small hole for the sun to shine through. The middle of this bridge is conceived as the axis of the world, and its extremities as the poles: on the one side are delineated the 12 signs of the zodiac, and sometimes opposite the degrees of the sun's declination; and on the other side the days of the month throughout the year. On the other side of the outer ring *A* are the divisions of 90° , or a quadrant of altitude: It serves, by the placing of a common pin *P* in the hole *b* (see fig. 22.), to take the sun's altitude or height, and from which the latitude of the place may easily be found.

20
Its use.

Use of the Dial. Place the line *a* in the middle of the sliding piece *H* over the degree of latitude of the place. Suppose, for example, $51\frac{1}{2}$ for London; put the line which crosses the hole of the cursor *C* to the day of the month or the degree of the sign. Open the instrument till the two rings be at right angles to each other, and suspend it by the middle of the bridge be parallel to the axis of the earth, viz. the north pole to the north, and *vice versa*. Then turn the flat side of the bridge towards the sun, so that his rays passing through the small hole in the cursor may fall exactly in a line drawn through the middle of the concave surface of the inner ring or hour-circle, the bright spot by which shows the hour of the day in the said concave surface of the dial. *Note*, The hour *XII* cannot be shown by this dial, because the outer ring being then in the plane of the meridian, excludes the sun's rays from the inner; nor can this dial show the hour when the sun is in the equinoctial, because his rays then falling parallel to the plane of the inner circle or equinoctial, are excluded by it.

To take the altitude of the sun by this dial, and with the declination thereby to find the latitude of the place. Place a common pin *P* in the hole *b*, projecting in the side of the meridian where the quadrant of altitude is; then bring the centre mark of the sliding piece *H* to the *o* or middle of the two divisions of latitude on the other side, and turn the pin towards the sun till it cuts a shadow over the degree of the quadrant of altitude; then what degree the shadow cuts is the altitude. Thus, in fig. 22. the shadow *hg* appears to cut 35° , the altitude of the sun.

The sun's declination is found by moving the cursor in the sliding piece till the mark across the hole stands just against the day of the month; then, by turning to the other side of the bridge, the mark will stand against the sun's declination.

In order to find the latitude of the place, observe that the latitude and the declination be the same, viz. both north or south; subtract the declination from the meridian or greatest daily altitude of the sun, and the remainder is the complement of the latitude; which subtracted from 90° , leaves the latitude.

Example.

	Deg.	Min.
The meridian altitude may be	57	48
The sun's declination for the day	19	18
	<hr/>	
Complement of latitude	38	30
	<hr/>	
	90	0
	<hr/>	
The latitude	51	30

But if the latitude and declination be contrary, add them together, and the sum is the complement of the latitude. This dial is sometimes mounted on a stand, with a compass, two spirit levels, and adjusting screws, &c. &c. (see fig. 23.), by which it is rendered more useful and convenient for finding the sun's azimuth, altitudes, variation of the needle, declinations of planes, &c. &c.

An *Universal Dial on a plain cross*, is described by Mr Fergufon. It is moveable on a joint *C*, for elevating it to any given latitude on the quadrant *Co* 90° , as it stands upon the horizontal board *A*. The arms of the cross stand at right angles to the middle part; and the top of it from *a* to *n*, is of equal length with either of the arms *ne* or *mk*. See fig. 24.

This dial is rectified by setting the middle line *tu* to the latitude of the place on the quadrant, the board *A* level, and the point *N* northward by the needle; thus, the plane of the cross will be parallel to the plane of the equator. Then, from *III* o'clock in the morning till *VI*, the upper edge *kl* of the arm *io* will cast a shadow on the time of the day on the side of the arm *cm*; from *VI* till *IX*, the lower edge *i* of the arm *io* will cast a shadow on the hours on the side *og*. From *IX* in the morning to *XII* at noon, the edge *ab* of the top part *an* will cast a shadow on the hours on the arm *nef*; from *XII* to *III* in the afternoon, the edge *cd* of the top part will cast a shadow on the hours on the arm *klm*; from *III* to *VI* in the evening, the edge *gb* will cast a shadow on the hours on the part *pq*; and from *VI* till *IX*, the shadow of the

21
Universal
Cross-dial.
Fig. 24, 25,
26.

the edge *ef* will show the time on the top part *an*. The breadth of each part, *ab*, *ef*, &c. must be so great, as never to let the shadow fall quite without the part or arm on which the hours are marked, when the sun is at his greatest declination from the equator.

To determine the breadth of the sides of the arms which contain the hours, so as to be in just proportion to their length; make an angle *ABC* (fig. 25.) of $23\frac{1}{2}$ degrees, which is equal to the sun's greatest declination; and suppose the length of each arm, from the side of the long middle part, and also the length of the top part above the arms, to be equal to *Bd*. Then, as the edges of the shadow, from each of the arms, will be parallel to *Be*, making an angle of $23\frac{1}{2}$ degrees with the side *Bd* of the arm, when the sun's declination is $23\frac{1}{2}$, it is plain, that if the length of the arm be *Bd*, the least breadth that it can have, to keep the edge *Be* of the shadow *Begd* from going off the side of the arm *de* before it comes to the end of it *ed*, must be equal to *ed* or *dB*. But in order to keep the shadow within the quarter divisions of the hours, when it comes near the end of the arm, the breadth of it should be still greater, so as to be almost doubled, on account of the distance between the tips of the arms.

The hours may be placed on the arms, by laying down the cross *abcd* (fig. 26.) on a sheet of paper; and with a black lead pencil held close to it, drawing its shape and size on the paper. Then take the length *ae* in the compasses, and with one foot in the corner *a*, describe with the other the quadrant *ef*. Divide this arc into six equal parts, and through the points of division draw light lines *ag*, *ah*, &c. continuing three of them to the arm *ce*, which are all that can fall upon it; and they will meet the arm in those points through which the lines that divide the hours from each other, as in fig. 24. are to be drawn right across it. Divide each arm, for the three hours contained in it, in the same manner; and set the hours to their proper places, on the sides of the arms, as they are marked in fig. 33. Each of the hour spaces should be divided into four equal parts, for the half hours and quarters, in the quadrant *ef*; and right lines should be drawn through these division-marks in the quadrant, to the arms of the cross, in order to determine the places thereon where the subdivisions of the hours must be marked.

This is a very simple kind of universal dial; it is easily made, and has a pretty uncommon appearance in a garden.

Fig. 27. is called an *Universal Mechanical Dial*, as by its equinoctial circle an easy method is had of describing a dial on any kind of plane. For example: Suppose a dial is required on an horizontal plane. If the plane be immovable, as *ABCD*, (fig. 27.) find a meridian line as *GF*; or if moveable, assume the meridian at pleasure: then by means of the triangle *EKF*, whose base is applied on the meridian line, raise the equinoctial dial *H* till the index *GI* becomes parallel to the axis of the earth, (which is so, if the angle *KEF* be equal to the elevation of the pole), and the 12 o'clock line on the dial hand over the meridian line of the plane or the base of the triangle. If then, in the night time or a darkened place, a lighted candle be successively applied to the axis *GI*, so as the

shadow of the index or stile *GI* falls upon one hour-line after another, the same shadow will mark out the several hour-lines on the plane *ABCD*. Noting the points therefore on the shadow, draw lines through them to *G*; then an index being fixed on *G*, according to the angle *IGF*, its shadow will point out the several hours by the light of the sun. If a dial were required on a vertical plane, having raised the equinoctial circle as directed, push forward the index *GI* till the tip thereof *I* touch the plane. If the plane be inclined to the horizon, the elevation of the pole should be found on the same; and the angle of the triangle *KEF* should be made equal thereto.

Mr Ferguson describes a method of making *three dials on three different planes, so that they may all show the time of the day by one gnomon*. On the flat board *ABC*, (fig. 28.) describe an horizontal dial, with its gnomon *FGH*, the edge of the shadow of which shows the time of the day. To this horizontal board join the upright board *EDC*, touching the edge *GH* of the gnomon; then making the top of the gnomon at *G* the centre of the vertical fourth dial, describe it on the board *EDC*. Besides, on a circular plate *IK* describe an equinoctial dial, and, by a slit *cd* in the *XII* o'clock line from the edge to the centre, put it on the gnomon *EG* as far as the slit will admit. The same gnomon will show the same hour on each of these dials.

An *Universal Dial, showing the hours of the day by a terrestrial globe, and by the shadows of several gnomons, at the same time: together with all the places of the earth which are then enlightened by the sun; and those to which the sun is then rising, or on the meridian, or setting*. This dial is made of a thick square piece of wood, or hollow metal. The sides are cut into semicircular hollows, in which the hours are placed; the stile of each hollow coming out from the bottom thereof, as far as the ends of the hollows project. The corners are cut out into angles; in the insides of which the hours are also marked; and the edge of the end of each side of the angle serves as a stile for casting a shadow on the hours marked on the other side.

In the middle of the uppermost side, or plane, there is an equinoctial dial; in the centre whereof an upright wire is fixed, for casting a shadow on the hours of that dial, and supporting a small terrestrial globe on its top.

The whole dial stands on a pillar, in the middle of a round horizontal board, in which there is a compass and magnetic needle, for placing the meridian stile toward the south. The pillar has a joint with a quadrant upon it, divided into 90 degrees (supposed to be hid from sight under the dial in the figure) for setting it to the latitude of any given place.

The equator of the globe is divided into 24 equal parts, and the hours are laid down upon it at these parts. The time of the day may be known by these hours, when the sun shines upon the globe.

To rectify and use this dial, set it on a level table, or sole of a window, where the sun shines, placing the meridian stile due south, by means of the needle; which will be, when the needle points as far from the north-flour-de-lis towards the west, as it declines westward, at your place. Then bend the pillar in the joint, till the

black

23
Dials on
three planes
by one gno-
mon.

Plate
CLXXII.
Fig. 18.

22
Easy me-
thod of
drawing a
dial by the
universal
mechanical
dial.

black line on the pillar comes to the latitude of your place in the quadrant.

The machine being thus rectified, the plane of its dial part will be parallel to the equator, the wire or axis that supports the globe will be parallel to the earth's axis, and the north pole of the globe will point toward the north pole of the heavens.

The same hour will then be shown in several of the hollows, by the ends of the shadows of their respective styles; the axis of the globe will cast a shadow on the same hour of the day, in the equinoctial dial, in the centre of which it is placed, from the 20th of March to the 23d of September: and if the meridian of your place on the globe be set even with the meridian stile, all the parts of the globe that the sun shines upon will answer to those places of the real earth which are then enlightened by the sun. The places where the shade is just coming upon the globe answer to all those places of the earth to which the sun is then setting; as the places where it is going off, and the light coming on, answer to all the places of the earth where the sun is then rising. And lastly, if the hour of *VI* be marked on the equator in the meridian of your place (as it is marked on the meridian of London in the figure), the division of the light and shade on the globe will show the time of the day.

The northern stile of the dial (opposite to the southern or meridian one) is hid from the sight in the figure, by the axis of the globe. The hours in the hollow to which that stile belongs are also supposed to be hid by the oblique view of the figure; but they are the same as the hours in the front hollow. Those also in the right and left hand semicircular hollows are mostly hid from sight; and so also are all those on the sides next the eye of the four acute angles.

The construction of this dial is as follows:

Plate
CLXXII.

On a thick square piece of wood, or metal, draw the lines *ac* and *bd*, fig. 17. as far from each other as you intend for the thickness of the stile *abcd*; and in the same manner draw the like thickness of the other three stiles *efghiklm*, and *nopq*, all standing outright as from the centre.

With any convenient opening of the compasses, as *aA*, (so as to have proper strength of stuff when *KI* is equal to *aA*), set one foot on *a* as a centre, and with the other foot describe the quadrantal arc *Ac*. Then, without altering the compasses, set one foot on *b* as a centre, and with the other foot describe the quadrant *dB*. All the other quadrants in the figure must be described in the same manner, and with the same opening of the compasses, on their centres *efik*, and *no*; and each quadrant divided into six equal parts, for as many hours, as in the figure; each of which parts must be subdivided into 4, for the half hours and quarters.

At equal distances from each corner, draw the right lines *Ip* and *Kp*, *Iq* and *Mq*, *Nr* and *Or*, *Ps* and *Qs*; to form the four angular hollows *IpK*, *LqM*, *NrO*, and *PsQ*; making the distances between the tips of these hollows, as *IK*, *LM*, *NO*, and *PQ*, each equal to the radius of the quadrants; and leaving sufficient room within the angular points *pqr* and *s*, for the equinoctial in the middle.

To divide the inside of these angles properly for the hour spaces thereon, take the following method:

Set one foot of the compasses in the point *I* as a centre, and open the other to *K*; and with that opening describe the arc *Kt*; then, without altering the compasses, set one foot in *K*, and with the other foot describe the arc *It*. Divide each of these arcs, from *I* and *K* to their intersection at *t*, into four equal parts; and from their centres *I* and *K*, through the points of division, draw the right lines *I3*, *I4*, *I5*, *I6*, *I7*; and *K2*, *K1*, *K12*, *K11*; and they will meet the sides *Kp* and *Ip* of the angle *IpK* where the hours thereon must be placed. And these hour spaces in the arcs must be subdivided into four equal parts, for the half hours and quarters. Do the like for the other three angles, and draw the dotted lines, and set the hours in the insides where those lines meet them, as in the figure; and the like hour-lines will be parallel to each other in all the quadrants and in all the angles.

Mark points for all these hours on the upper side; and cut out all the angular hollows and the quadrantal ones quite through the places where their four gnomons must stand; and lay down the hours on their insides (as in fig. 18.), and set in their gnomons, which must be as broad as the dial is thick; and this breadth and thickness must be large enough to keep the shadows of the gnomons from ever falling quite out at the sides of the hollows, even when the sun's declination is at the greatest.

Lastly, draw the equinoctial dial at the middle, all the hours of which are equidistant from each other; and the dial will be finished.

As the sun goes round, the broad end of the shadow of the stile *acbd* will show the hours in the quadrant *Ac* from sunrise till *VI* in the morning: the shadow from the end *M* will show the hours on the side *Lq* from *V* to *IX* in the morning; the shadow of the stile *efgb* in the quadrant *Dg* (in the long days) will show the hours from sunrise till *VI* in the morning; and the shadow of the end *N* will show the morning hours on the side *Or* from *III* to *VII*.

Just as the shadow of the northern stile *abcd* goes off the quadrant *Ac*, the shadow of the southern stile *iklm* begins to fall within the quadrant *FI*, at *VI* in the morning; and shows the time, in that quadrant, from *VI* till *XII* at noon; and from noon till *VI* in the evening in the quadrant *mE*. And the shadow of the end *O* shows the time from *XI* in the forenoon till *III* in the afternoon, on the side *rN*; as the shadow on the end *P* shows the time from *IX* in the morning till *I* o'clock in the afternoon, on the side *Qs*.

At noon, when the shadow of the eastern stile *efgb* goes off the quadrant *bC* (in which it showed the time from *VI* in the morning till noon, as it did in the quadrant *gD* from sunrise till *VI* in the morning), the shadow of the western stile *nopq* begins to enter the quadrant *Hp*, and shows the hours thereon from *XII* at noon till *VI* in the evening; and after that till sunset, in the quadrant *qG*, and the end *Q* casts a shadow on the side *Ps* from *V* in the evening till *IX* at night, if the sun be not set before that time.

The shadow of the end *I* shows the time on the side *Kp* from *III* till *VII* in the afternoon; and the shadow of the stile *abcd* shows the time from *VI* in the evening till the sun sets.

The shadow of the upright central wire, that supports

ports the globe at top, shows the time of the day, in the middle or equinoctial dial, all the summer half-year, when the sun is on the north side of the equator.

Having shown how to make sun-dials by the assistance of a good globe, or of a dialling scale, we shall now proceed to the method of constructing dials arithmetically; which will be more agreeable to those who have learned the elements of trigonometry, because globes and scales can never be so accurate as the logarithms in finding the angular distance of the hours. Yet as a globe may be found exact enough for some other requisites in dialling, we shall take it occasionally.

The construction of sun-dials on all planes whatever may be included in one general rule; intelligible, if that of a horizontal dial for any given latitude be well understood. For there is no plane, however obliquely situated with respect to any given place, but what is parallel to the horizon of some other place; and therefore, if we can find that other place by a problem on the terrestrial globe, or by a trigonometrical calculation, and construct a horizontal dial for it, that dial applied to the plane where it is to serve will be a true dial for that place. Thus, an erect direct south dial in $51\frac{1}{2}$ degrees north latitude, would be a horizontal dial on the same meridian, 90 degrees southward of $51\frac{1}{2}$ degrees of north latitude. But if the upright plane declines from facing the south at the given place, it would still be a horizontal plane 90 degrees from that place, but for a different longitude, which would alter the reckoning of the hours accordingly.

CASE I. 1. Let us suppose that an upright plane at London declines 36 degrees westward from facing the south, and that it is required to find a place on the globe to whose horizon the said plane is parallel; and also the difference of longitude between London and that place.

Rectify the globe to the latitude of London, and bring London to the zenith under the brass meridian; then that point of the globe which lies in the horizon at the given degree of declination (counted westward from the south point of the horizon) is the place at which the above-mentioned plane would be horizontal.—Now, to find the latitude and longitude of that place keep your eye upon the place, and turn the globe eastward until it comes under the graduated edge of the brass meridian; then the degree of the brass meridian that stands directly over the place in its latitude; and the number of degrees in the equator, which are intercepted between the meridian of London and the brass meridian, is the place's difference of longitude.

Thus, as the latitude of London is $51\frac{1}{2}$ degrees north, and the declination of the place is 36 degrees west; elevate the north pole $51\frac{1}{2}$ degrees above the horizon, and turn the globe until London comes to the zenith, or under the graduated edge of the meridian; then count 36 degrees on the horizon westward from the south point, and make a mark on that place of the globe over which the reckoning ends, and bringing the mark under the graduated edge of the brass meridian, it will be found to be under $30\frac{1}{2}$ degrees in south latitude; keeping it there, count in the equator the number of degrees between the meridian of London and the

brazen meridian (which now becomes the meridian of the required place), and you will find it to be $42\frac{1}{4}$. Therefore an upright plane at London, declining 36 degrees westward from the south, would be a horizontal plane at that place, whose latitude is $30\frac{1}{2}$ degrees south of the equator, and longitude $42\frac{1}{4}$ degrees west of the meridian of London.

Which difference of longitude being converted into time, is 2 hours 51 minutes.

The vertical dial declining westward 36 degrees at London, is therefore to be drawn in all respects as a horizontal dial for south latitude $30\frac{1}{2}$ degrees; save only that the reckoning on the hours is to anticipate the reckoning on the horizontal dial by 2 hours 51 minutes; for so much sooner will the sun come to the meridian of London, than to the meridian of any place whose longitude is $42\frac{1}{4}$ degrees west from London.

2. But to be more exact than the globe will show us, we shall use a little trigonometry.

Let NESW (fig. 12.) be the horizon of London, whose zenith is Z, and P the north pole of the sphere; and let Zb be the position of a vertical plane at Z, declining westward from S (the south) by an angle of 36 degrees; on which plane an erect dial for London at Z is to be described. Make the semidiameter ZD perpendicular to Zb; and it will cut the horizon in D, 36 degrees west of the south S. Then a plane, in the tangent HD, touching the sphere in D, will be parallel to the plane Zb; and the axis of the sphere will be equally inclined to both these planes.

Let WQE be the equinoctial, whose elevation above the horizon of Z (London) is $38\frac{1}{2}$ degrees; and PRD be the meridian of the place D, cutting the equinoctial in R. Then it is evident, that the arc RD is the latitude of the place D (where the plane Zb would be horizontal) and the arc RQ is the difference of longitude of the planes Zb and DH.

In the spherical triangle WDR, the arc WD is given, for it is the complement of the plane's declination from S to south; which complement is 54° (viz. $90^\circ - 36^\circ$); the angle at R, in which the meridian of the place D cuts the equator, is a right angle; and the angle RWD measures the elevation of the equinoctial above the horizon of Z, namely $38\frac{1}{2}$ degrees. Say therefore, As radius is to the co-sine of the plane's declination from the south, so is the co-sine of the latitude of Z to the sine of RD the latitude of D; which is of a different denomination from the latitude of Z, because Z and D are on different sides of the equator.

As radius	-	10.00000
To co-sine $36^\circ 0'$ = RQ	-	9.90796
So co-sine $51^\circ 30'$ = QZ	-	9.79415

To sine $30^\circ 14'$ = DR (9.70211) = the latitude of D, whose horizon is parallel to the vertical plane Zb at Z.

N. B. When radius is made the first term, it may be omitted; and then by subtracting it mentally from the sum of the other two, the operation will be shortened. Thus, in the present case,

To

D I A L L I N G.

To the logarithmic sine of WR = * 54° 0'	9.90796
Add the logarithmic sine of RD = † 38° 30'	9.79415
<hr/>	
Their sum—radius	9.70211

gives the same solution as above. And we shall keep to this method in the following part of this article.

To find the difference of longitude of the places D and Z, say, As radius is to the co-sine of 38½ degrees, the height of the equinoctial at Z, so is the co-tangent of 36 degrees, the plane's declination, to the co-tangent of the difference of longitudes. Thus,

To the logarithmic sine of ‡ 51° 30'	9.89354
Add the logarithmic tang. of § 54° 0'	10.13874
<hr/>	
Their sum—radius	10.03228

is the nearest tangent of 47° 8' = WR: which is the co-tangent of 42° 52' = RQ, the difference of longitude sought. Which difference, being reduced to time, is 2 hours 51½ minutes.

3. And thus having found the exact latitude and longitude of the place D, to whose horizon the vertical plane at Z is parallel, we shall proceed to the construction of a horizontal dial for the place D, whose latitude is 38° 14' south; but anticipating the time at D by 2 hours 51 minutes (neglecting the ½ minute in practice), because D is so far westward in longitude from the meridian of London; and this will be a true vertical dial at London, declining westward 36 degrees.

Assume any right line CSL (fig. 13.) for the substile of the dial, and make the angle KCP equal to the latitude of the place (viz. 30° 14'), to whose horizon the plane of the dial is parallel; then CRP will be the axis of the stile, or edge that casts the shadow on the hours of the day, in the dial. This done, draw the contingent line EQ cutting the substilar line at right angles in K; and from K make KR perpendicular to the axis CRP. Then KG (=KR) being made radius, that is, equal to the chord of 60° or tangent of 45° on a good sector, take 42° 52' (the difference of longitude of the places Z and D) from the tangents, and having set it from K to M, draw CM for the hour-line of XII. Take KN, equal to the tangent of an angle less by 15 degrees than KM; that is, the tangent of 27° 52': and through the point N draw CN for the hour-line of I. The tangent of 12° 52' (which is 15° less than 27° 42'), set off the same way, will give a point between K and N, through which the hour-line of II is to be drawn. The tangent of 2° 8' (the difference between 45° and 52° 52') placed on the other side of CL, will determine the point through which the hour-line of III is to be drawn: to which 2° 8', if the tangent of 15° be added, it will make 17° 8'; and this set off from K towards Q on the line EQ, will give the point for the hour-line of IV; and so of the rest.—The forenoon hour-lines are drawn the same way, by the continual addition of the tangents 15°, 30°, 45°, &c. to 42° 52' (= the tangents of

KM) for the hours of XI, X, IX, &c. as far as necessary; that is, until there be five hours on each side of the substile. The sixth hour, accounted from that hour or part of the hour on which the substile fails, will be always in a line perpendicular to the substile, and drawn through the centre C.

4. In all erect dials, CM, the hour-line of XII, is perpendicular to the horizon of the place for which the dial is to serve; for that line is the intersection of a vertical plane with the plane of the meridian of the place, both which are perpendicular to the plane of the horizon: and any line HO or *h o*, perpendicular to CM, will be a horizontal line on the plane of the dial, along which line the hours may be numbered; and CM being set perpendicular to the horizon, the dial will have its true position.

5. If the plane of the dial had declined by an equal angle towards the east, its description would have differed only in this, that the hour-line of XII would have fallen on the other side of the substile CL, and the line HO would have a subcontrary position to what it has in this figure.

6. And these two dials, with the upper points of their stiles turned toward the north pole, will serve for other two planes parallel to them; the one declining from the north toward the east, and the other from the north toward the west, by the same quantity of angle. The like holds true of all dials in general, whatever be their declination and obliquity of their planes to the horizon.

CASE II. 7. If the plane of the dial not only declines, but also reclines, or inclines. Suppose its declination from fronting the south S (fig. 14.) be equal to the arc SD on the horizon; and its reclination be equal to the arc D*d* of the vertical circle DZ: then it is plain, that if the quadrant of altitude Z*d*D on the globe cuts the point D in the horizon, and the reclination is counted upon the quadrant from D to *d*: the intersection of the hour circle PR *d*, with the equinoctial WQE, will determine R *d*, the latitude of the place *d*, whose horizon is parallel to the given plane Z*b* at Z; and RQ will be the difference in longitude of the places at *d* and Z.

Trigonometrically thus: Let a great circle pass through the three points, W, *d*, E; and in the triangle WD*d*, right angled at D, the sides WD and D*d* are given; and thence the angle DW *d* is found, and so is the hypotenuse W *d*. Again, the difference, or the sum, of DW *d* and DWR, the elevation of the equinoctial above the horizon of Z, gives the angle *d*WR; and the hypotenuse of the triangle WR *d* was just now found; whence the sides R *d* and WR are found, the former being the latitude of the place *d*, and the latter the complement of RQ, the difference of longitude sought.

Thus, if the latitude of the place Z be 52° 10' north; the declination SD of the plane Z*b* (which would be horizontal at *d*) be 36°, and the reclination be 15°, or equal to the arc D*d*; the south latitude of the place *d*, that is, the arc R *d*, will be 15° 9'; and RQ the difference

* The co-sine of 36.0, or of RQ. † The co-sine of 51.30, or of QZ. ‡ The co-sine of 38.30, or of WDR. § The co-tangent of 36.0, or of DW.

difference of the longitude, $36^{\circ} 2'$. From these data, therefore, let the dial (fig. 15.) be described, as in the former example.

8. There are several other things requisite in the practice of dialling; the chief of which shall be given in the form of arithmetical rules, simple and easy to those who have learned the elements of trigonometry. For in practical arts of this kind, arithmetic should be used as far as it can go; and scales never trusted to, except in the final construction, where they are absolutely necessary in laying down the calculated hour-distances on the plane of the dial.

Rule I. *To find the angles which the hour-lines on any dial make with the substile.* To the logarithmic sine of the given latitude, or of the stile's elevation above the plane of the dial, add the logarithmic tangent of the hour (*) distance from the meridian, or from the (+) substile; and the sum minus radius will be the logarithmic tangent of the angle sought.

For KC (fig. 13.) is to KM in the ratio compounded of the ratio of KC to KG (=KR) and of KG to KM; which making CK the radius 10,000,000, or 10,0000, or 10, or 1, are the ratio of 10,000,000, or of 10,0000, or of 10, or of 1, to $KG \times KM$.

Thus, in a horizontal dial, for latitude $51^{\circ} 30'$, to find the angular distance of XI in the forenoon, or I in the afternoon, from XII.

To the logarithmic sine of $51^{\circ} 30'$	9.89354 †
Add the logarithmic tang. of $51^{\circ} 0'$	9.42805

The sum—radius is	9.32159=the
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logarithmic tangent of $11^{\circ} 50'$, or of the angle which the hour-line of XI or I makes with the hour of XII.

And by computing in this manner, with the sine of the latitude, and the tangents of $30, 45, 60,$ and 75° , for the hours of II, III, IIII, and V in the afternoon; or of X, IX, VIII, and VII in the forenoon; you will find their angular distances from XII to be $24^{\circ} 18', 38^{\circ} 3', 53^{\circ} 35',$ and $71^{\circ} 6'$; which are all that there is occasion to compute for.—And these distances may be set off from XII by a line of chords; or rather, by taking 1000 from a scale of equal parts, and setting that extent as a radius from C to XII; and then, taking 209 of the same parts (which are the natural tangent of $11^{\circ} 50'$), and setting them from XII to XI and I, on the line *bo*, which is perpendicular to C XII; and so for the rest of the hour lines, which, in the table of natural tangents, against the above distances, are 451, 782, 1355, and 2920, of such equal parts from XII, as the radius C XII contains 1000. And lastly, set off 1257 (the natural tangent of 51°)

VOL. VII. Part I.

$30'$) for the angle of the stile's height, which is equal to the latitude of the place.

Rule II. *The latitude of the place, the sun's declination, and his hour distance from the meridian, being given, to find (1.) his altitude, (2.) his azimuth.* (1) Let *d* (fig. 14.) be the sun's place, *dR* his declination; and, in the triangle PZ*d*, P*d*, the sum, or the difference, of *dR*, and the quadrant PR, being given by the supposition, as also the complement of the latitude PZ, and the angle *dPZ*, which measures the horary distance of *d* from the meridian; we shall (by Case 4. of Keill's oblique spheric Trigonometry) find the base Z*d*, which is the sun's distance from the zenith, or the complement of his altitude.

And (2.) as $\text{fine } Zd : \text{fine } Pd :: \text{fine } dPZ : dZP,$ or of its supplement DZS, the azimuthal distance from the south.

Or the practical rule may be as follows:

Write A for the sine of the sun's altitude, L and *l* for the sine and co-sine of the latitude, D and *d* for the sine and co-sine of the sun's declination, and H for the sine of the horary distance from VI.

Then the relation of H to A will have three varieties.

1. When the declination is toward the elevated pole, and the hour of the day is between XII and VI; it is

$$A = LD + H/d, \text{ and } H = \frac{A - LD}{l/d}.$$

2. When the hour is after VI, it is $A = LD - H/d,$

$$\text{and } H = \frac{LD + A}{l/d}.$$

3. When the declination is toward the depressed pole, we have $A = H/d - LD,$ and $H = \frac{A + LD}{l/d}.$

Which theorems will be found useful, and expeditious enough for solving those problems in geography and dialling which depend on the relation of the sun's altitude to the hour of the day.

Example I. Suppose the latitude of the place to be $51\frac{1}{2}$ degrees north: the time 5 hours distant from XII, that is, an hour after VI in the morning, or before VI in the evening; and the sun's declination 20° north. *Required the sun's altitude?*

Then to log. L=log. sin. $51^{\circ} 30'$	1.89354 **
add log. D=log. sin. $20^{\circ} 0'$	1.53405

Their sum	1.42759 gives
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LD=logarithm of 0.267664, in the natural sines.

D d

And,

(*) That is, of 15, 30, 45, 60, 75° , for the hours of I, II, III, IIII, and V, in the afternoon; and IX, X, IX VIII, VII, in the afternoon.

(†) In all horizontal dials, and erect north or south dials, the substile and meridian are the same; but in all declining dials the substile line makes an angle with the meridian.

(‡) In which case the radius CK is supposed to be divided into 10,000 equal parts.

** Here we consider the radius as unity, and not 10,000: but which, instead of the index 9, we have —1 as above; which is of no farther use than making the work a little easier.

D I A L L I N G.

And, to log. $H = \log. \sin. \dagger\dagger 15^\circ 0'$ 1.41300
 add $\left\{ \begin{array}{l} \log. l = \log. \sin. \dagger\dagger 38^\circ 0' \\ \log. d = \log. \sin. \S\S 70^\circ 0' \end{array} \right.$ 1.79414
 1.97300

Their sum 1.18014 gives

$H/d =$ logarithm of 0.151408, in the natural sines.

And these two numbers (0.267664 and 0.151408) make 0.419072 = A ; which, in the table, is the nearest natural sine of $24^\circ 47'$, the sun's altitude sought.

The same hour distance being assumed on the other side of VI , then $LD - H/d$ is 0.116256, the sine of $6^\circ 40\frac{1}{2}'$; which is the sun's altitude at V in the morning, or VII in the evening, when his north declination is 20° .

But when the declination is 20° south (or towards the depressed pole) the difference $H/d - LD$ becomes negative; and thereby shows, that an hour before VI in the morning, or past VI in the evening, the sun's centre is $6^\circ 40\frac{1}{2}'$ below the horizon.

Examp. 2. From the same data, to find the sun's azimuth. If H , L , and D , are given, then (by par. 2. of Rule II.) from H having found the altitude and its complement Zd ; and the arc Pd (the distance from the pole) being given; say, As the co-sine of the altitude is to the sine of the distance from the pole), so is the sine of the hour-distance from the meridian to the sine of the azimuth distance from the meridian.

Let the latitude be $51^\circ 30'$ north, the declination $15^\circ 9'$ south, and the time II h. 24 m. in the afternoon, when the sun begins to illuminate a vertical wall, and it is required to find the position of the wall.

Then by the foregoing theorems, the complement of the altitude will be $81^\circ 32\frac{1}{2}'$, and Pd the distance from the pole being $109^\circ 5'$, and the horary distance from the meridian, or the angle dPZ , 36° .

To log. sin. $74^\circ 51'$ - - 1.98464
 Add log. sin. $36^\circ 0'$ - - 1.76922

And from the sum - 1.75386
 Take the log. sin. $81^\circ 32\frac{1}{2}'$ 1.99525

Remains 1.75861 = log. sin.

35° , the azimuth distance sought.

When the altitude is given, find from thence the hour, and proceed as above.

This praxis is of singular use on many occasions:—in finding the declination of vertical planes more exactly than in the common way, especially if the transits of the sun's centre are observed by applying a ruler with sights, either plain or telescopical, to the wall or plane whose declination is required:—in drawing a meridian line, and finding the magnetic variation:—in finding the bearings of places in terrestrial surveys; the transits of the sun over any place, or his horizontal distance from it, being observed, together with the altitude and hour; and thence determining small differences of longitude:—in observing the variations at sea, &c.

The declination, inclination, and reclinacion, of planes, are frequently taken with a sufficient degree of accuracy by an instrument called a declinator or declinator.²⁴ Improved declinator.

The construction of this instrument is as follows: On a mahogany board $ABIK$, (fig. 34.) is inserted a semicircular arch $AGEB$ of ivory or box-wood, divided into two quadrants of 90° each, beginning from the middle G . On the centre C turns a vertical quadrant DFE divided into 90° , beginning from the base E ; on which is a moveable index CF , with a small hole at F for the sun's rays to pass through, and form a spot on a mark at C . The lower extremity of the quadrant at E is pointed, to mark the linear direction of the quadrant when applied to any other plane; as this quadrant takes off occasionally, and a plumb-line P hangs at the centre on C , for taking the inclinations and reclinacions of planes. At H , on the plane of the board, is inserted a compass of points and degrees, with a magnetical needle turning on a pivot over it. The addition of the moveable quadrant and index considerably extend the utility of the declinator, by rendering it convenient for taking equal altitudes of the sun, the sun's altitude and bearing, at the same time, &c.

To apply this instrument in taking the declination of a wall or plane: Place the side ACB in a horizontal direction to the plane proposed, and observe what degree or point of the compass the N part of the needle stands over from the north or the south, and it will be the declination of the plane from the north or south accordingly. In this case, allowance must be made for the variation of the needle (if any) at the place; and which, if not previously known, will render this operation very inaccurate. At London it is now $22^\circ 30'$ to the west.

Another way more exact may be used, when the sun shines out half an hour before noon. The side ACB being placed against the plane, the quadrant must be so moved on the semicircle AGB , and the index CF on DE , till the sun's rays passing through the hole at F fall exactly on the mark at G , and continued so till the sun requires the index to be raised no higher: you will then have the meridian or greatest altitude of the sun; and the angle contained between G and E will be the declination required. The position of CE is the meridian or 12 o'clock line. But the most exact way for taking the declination of a plane, or finding a meridian line, by this instrument, is, in the forenoon, about two or three hours before 12 o'clock, to observe two or three heights or altitudes EF of the sun; and at the same time the respective angular polar distances GE from G : write them down; and in the afternoon watch for the same, or one of the same altitudes, and mark the angular distances or distance on the quadrant AG . Now, the division or degree exactly between the two noted angular distances will be the true meridian, and the distance at which it may fall from the C of the divisions at G will be the declination of the plane. The reason for observing

Plate CLXXIV.

To take by it the declination, &c. and to find a meridian line.

†† The distance of one hour from VI .
 §§ The co-declination of the sun.

†† The co-latitude of the place.

two or three altitudes and angles in the morning is, that in case there should be clouds in the afternoon, you may have the chance of one corresponding altitude.

The quadrant occasionally takes off at C, in order to place it on the surface of a pedestal or plane intended for an horizontal dial; and thereby from equal altitudes of the sun, as above, draw a meridian or 12 o'clock line to set the dial by.

The base ABIK serves to take the inclination and reclination of planes. In this case, the quadrant is taken off, and the plummet P is fitted on a pin at the centre C: then the side IGK being applied to the plane proposed, as QL (fig. 35.) if the plumb-line cuts the semicircle in the point G, the plane is horizontal; or if it cut the quadrant in any point at S, then will GCS be the angle of inclination. Lastly, if applying the side ACB to the plane, the plummet cuts G, the plane is vertical; or if it cuts either of the quadrants, it is accordingly the angle of reclination. Hence, if the quantity of the angle of inclination be compared with the elevation of the pole and equator, it is easily known whether the plane be inclined or reclined.

Of the double Horizontal Dial, and the Babylonian and Italian Dials.

To the *gnomonic* projection, there is sometimes added a *stereographic* projection of the hour-circles, and the parallels of the sun's declination, on the same horizontal plane; the upright side of the gnomon being sloped into an edge, standing perpendicularly over the centre of the projection; so that the dial, being in its due position, the shadow of *that* perpendicular edge is a vertical circle passing through the sun, in the stereographic projection.

The months being duly marked on this dial, the sun's declination, and the length of the day at any time, are had by inspection (as also his latitude, by means of a scale of tangents). But its chief property is, that it may be placed true, whenever the sun shines, without the help of any other instrument.

Let *d* (fig. 14.) be the sun's place in the stereographic projection, *xy z* the parallel of the sun's declination, *Zd* a vertical circle through the sun's centre, *Pd* the hour-circle; and it is evident, that the diameter NS of this projection being placed duly north and south, these three circles will pass through the point *d*. And therefore, to give the dial its due position, we have only to turn its gnomon toward the sun, on a horizontal plane, until the hour on the common gnomonic projection coincides with that marked by the hour-circle *Pd*, which passes through the intersection of the shadow *Zd* with the circle of the sun's present declination.

The Babylonian and Italian dial reckon the hours not from the meridian as with us, but from the sun's rising and setting. Thus, in Italy, an hour before sunset is reckoned the 23d hour; two hours before sunset the 2d hour; and so of the rest. And the shadow that marks them on the hour-lines, is *that* of the point of a stile. This occasions a perpetual variation between their dials and clocks, which they must correct from time to time, before it arises to any sensible quantity, by setting their clocks so much faster or slower. And in Italy, they begin their day, and regulate their

clocks, not from sunset, but from about mid-twilight, when the *Ave-Maria* is said; which corrects the difference that would otherwise be between the clock and the dial.

The improvements which have been made in all sorts of instruments and machines for measuring time, have rendered such dials of little account. Yet, as the theory of them is ingenious, and they are really, in some respects, the best contrived of any for vulgar use, a general idea of their description may not be unacceptable.

Let fig. 16. represent an erect direct south wall, on which a Babylonian dial is to be drawn, showing the hours from sunrise; the latitude of the place, whose horizon is parallel to the wall, being equal to the angle KCR. Make, as for a common dial, $KG=KR$ (which is perpendicular to CR) the radius of the equinoctial \mathcal{AEQ} , and draw RS perpendicular to CK for the stile of the dial; the shadow of whose point R is to mark the hours, when SR is set upright on the plane of the dial.

Then it is evident, that, in the contingent line \mathcal{AEQ} , the spaces K 1, K 2, K 3, &c. being taken equal to the tangents of the hour-distances from the meridian, to the radius KG, one, two, three, &c. hours after sunrise, on the equinoctial day; the shadow of the point R will be found, at these times, respectively in the points 1, 2, 3, &c.

Draw, for the like hours after sunrise, when the sun is in the tropic of Capricorn \mathcal{V} , the like common lines CD, CE, CF, &c. and at these hours the shadow of the point R will be found in those lines respectively. Find the sun's altitudes above the plane of the dial at these hours; and with their co-tangents *Sd*, *Sc*, *Sf*, &c. to radius SR, describe arcs intersecting the hour-lines in the points *d*, *e*, *f*, &c. so shall the right lines *1 d*, *2 e*, *3 f*, &c. be the lines of *I*, *II*, *III*, &c. hours after sunrise.

The construction is the same in every other case; due regard being had to the difference of longitude of the place at which the dial would be horizontal, and the place for which it is to serve; and likewise, taking care to draw no lines but what are necessary; which may be done partly by the rules already given for determining the time that the sun shines on any plane; and partly from this, that on the tropical days, the hyperbola described by the shadow of the point R limits the extent of all the hour-lines.

Of the right placing of Dials, and having a true Meridian Line for the regulating of Clocks and Watches.

The plane on which the dial is to rest being duly prepared, and every thing necessary for fixing it, you may find the hour tolerably exact by a large equinoctial ring-dial, and set your watch to it. And then the dial may be fixed by the watch at your leisure.

If you would be more exact, take the sun's altitude by a good quadrant, noting the precise time of observation by a clock or watch. Then compute the time for the altitude observed; and set the watch to agree with that time, according to the sun. A Hadley's quadrant is very convenient for this purpose: for by it you may take the angle between the sun and his image reflected from a basin of water; the half of which angle, subtracting the refraction, is the altitude

Plate CLXXII.

required. This is best done in summer; and the nearer the sun is to the prime vertical (the east or west azimuth) when the observation is made, so much the better.

Or, in summer, take two equal altitudes of the sun in the same day; one any time between 7 and 10 in the morning, the other between 2 and 5 in the afternoon: noting the moments of these two observations by a clock or watch: and if the watch shows the observations to be at equal distances from noon, it agrees exactly with the sun: if not, the watch must be corrected by half the difference of the forenoon and afternoon intervals; and then the dial may be set true by the watch.

Thus, for example, suppose you had taken the sun's altitude when it was 20 minutes past VIII in the morning by the watch; and found, by observing in the afternoon, that the sun had the same altitude 10 minutes before III; then it is plain, that the watch was 5 minutes too fast for the sun: for 5 minutes after XII is the middle time between VIII h. 20 m. in the morning, and III h. 50 m. in the afternoon; and therefore, to make the watch agree with the sun, it must be set back five minutes.

A good *meridian line*, for regulating clocks or watches, may be had by the following method.

Make a round hole, almost a quarter of an inch diameter, in a thin plate of metal; and fix the plate in the top of a south window, in such a manner that it may recline from the zenith at an angle equal to the colatitude of your place, as nearly as you can guess: for then the plate will face the sun directly at noon on the equinoctial days. Let the sun shine freely through the hole into the room; and hang a plumb line to the ceiling of the room, at least five or six feet from the window, in such a place as that the sun's rays, transmitted through the hole, may fall upon the line when it is noon by the clock; and having marked the said place on the ceiling, take away the line.

Having adjusted a sliding bar to a dove-tail groove, in a piece of wood about 18 inches long, and fixed a hook into the middle of the bar, nail the wood to the above-mentioned place on the ceiling, parallel to the side of the room in which the window is; the groove and the bar being towards the floor: Then hang the plumb-line upon the hook in the bar, the weight or plummet reaching almost to the floor; and the whole will be prepared for further and proper adjustment.

This done, find the true solar time by either of the two last methods, and thereby regulate your clock. Then, at the moment of next noon by the clock, when the sun shines, move the sliding bar in the groove, until the shadow of the plumb-line bisects the image of the sun (made by his rays transmitted through the hole) on the floor, wall, or on a white screen placed on the north side of the line; the plummet or weight at the end of the line hanging freely in a pail of water placed below it on the floor.—But because this may not be quite correct for the first time, on account that the plummet will not settle immediately, even in water; it may be farther corrected on the following days, by the above method, with the sun and clock; and so brought to a very great exactness.

N. B. The rays transmitted through the hole will cast but a faint image of the sun, even on a white screen, unless the room be so darkened that no sunshine may be allowed to enter but what comes through the small hole in the plate. And always, for some time before the observation is made, the plummet ought to be immersed in a jar of water, where it may hang freely; by which means the line will soon become steady, which otherwise would be apt to continue swaying.

Description of two New Instruments for facilitating the practice of Dialling.

1. *The DIALLING Sector*, contrived by the late Mr Benjamin Martin, is an instrument by which dials are drawn in a more easy, expeditious, and accurate manner. The principal lines on it are the *line of latitudes* and the *line of hours* (Fig. 32.) They are found on most of the common plane scales and sectors; but in a manner that greatly confines and diminishes their use; for first, they are of a *fixed length*; and secondly, *too small* for any degree of accuracy. But in this new *sector*, the *line of latitudes* is laid down, as it is called, *sector-wise*, viz. one line of latitudes upon each leg of the sector, beginning in the centre of the joint, and diverging to the end (as upon other sectors), where the extremes of the two lines at 90° and 90° are nearly one inch apart, and their length $11\frac{1}{2}$ inches: which length admits of great exactness; for at the 70th degree of latitude, the divisions are to quarters of a degree or 15 minutes. This accuracy of the divisions admits of a peculiar advantage, namely, that it may be equally communicated to any length from 1 to 23 inches, by taking the *parallel* distances (see fig. 33.), viz. from 10 to 10, 20 to 20, 30 to 30, and so on, as is done in like cases on the lines of sines, tangents, &c. Hence its universal use for drawing dials of any proposed size. The line of hours for this end is adapted and placed contiguous to it on the sector, and of a size large enough for the very minutes to be distinct on the part where they are smallest, which is on each side of the hour of III.

From the construction of the line of hours before shown, the divisions on each side of the hour III are the same to each end, so that the hour-line properly is only a *double line of three hours*. Hence a line of 3 hours answers all the purposes of a line of 6, by taking the double extent of 3, which is the reason why upon the sector the line of hours extends only to $4\frac{1}{2}$.

To make use of the *line of latitude* and *line of hours* on the sector: As single scales only, they will be found more accurate than those placed on the common scales and sectors, in which the hours are usually subdivided, but into 5 minutes, and the line of latitudes into whole degrees. But it is shown above how much more accurately these lines are divided on the *dialling sector*. As an example of great exactness with which horizontal and other dials may be drawn by it, on account of this new *sectoral* disposition of these scales, and how all the advantages of their great length are preserved in any lesser length of the VI o'clock line *ce* and *af*, (Fig. 30.): Apply either of the distances of *ce* or *af* to the line of latitude at the given latitude of London, suppose $51^\circ 32'$ on one line to $51^\circ 32'$ on the other, in the manner shown in fig. 5. and then taking all the hours, quarters,

quarters, &c. from the hour scale by similar parallel extents, you apply them upon the lines *ed* and *fb* as before described.

As the hour-lines on the sector extend to but $4\frac{1}{2}$, the double distance of the hour 3, when used either singly or sectorally, must be taken, to be first applied from $51^{\circ} 32'$ on the latitudes, to its contact on the XII o'clock line, before the several hours are laid off. The method of drawing a vertical north or south dial is perfectly the same as for the above horizontal one; only reversing the hours as in fig. 1. and making the angle of the stile's height equal to the complement of the latitude $38^{\circ} 28'$.

The method of drawing a vertical declining dial by the sector, is almost evident from what has been already said in dialling. But more fully to comprehend the matter, it must be considered there will be a variation of particulars as follows: 1. Of the *substile* or line over which the stile is to be placed; 2. The height of the stile above the plane; 3. The difference between the meridian of the place and that of the plane, or their difference of longitude. From the given latitude of the place, and declination of the plane, you calculate the three requisites just mentioned, as in the following example. Let it be required to make an erect south dial, declining from the meridian westward $28^{\circ} 43'$, in the latitude of London $51^{\circ} 32'$. The first thing to be found is the distance of the substilar line GB (fig. 31.) from the meridian of the plane G XII. The analogy from this is: *A radius is to the sine of the declination, so is the co tangent of the latitude to the tangent of the distance sought, viz.* As radius : $28^{\circ} 43'$:: tang. $38^{\circ} 28'$: tangent $20^{\circ} 55'$. This and the following analogy may be as accurately worked on the Gunter's line of sines, tangents, &c. properly placed on the sector, as by the common way from logarithms. Next, to find the plane's difference of longitude. *As the sine of the latitude is to radius, so is the tangent of the declination to the tangent of the difference of longitude, viz.* As $s 51^{\circ} 32'$: radius :: tang. $28^{\circ} 43'$: tang. $35^{\circ} 0'$. Lastly, to find the height of the stile: *As radius is to the co-sine of the latitude, so is the co-sine of the declination to the sine of the stile's height, viz.* Radius : $s 38^{\circ} 28'$:: $s 61^{\circ} 17'$: $s 53^{\circ} 5'$.

The three requisites thus obtained, the dial is drawn in the following manner: Upon the meridian line G XII, with any radius GC describe the arch of a circle, upon which set off $20^{\circ} 55'$ from C to B, and draw GB, which will be the substilar line, over which the stile of the dial must be placed.

At right angles to this line GB, draw AQ indefinitely through the point G: then from the scale of latitudes take the height of the stile $33^{\circ} 5'$, and set it each way from G to A and Q. Lastly, take the double length of 3 on the hour-line in your compasses, and setting one foot in A or Q, with the other foot mark the line GB in D, and join ADQD, and then the triangle ADQ is completed upon the substilar GB.

To lay off the hours, the plane's difference of longitude being 35° , equal to 2 h. 20 min. in time, allowing 15° to an hour, so that there will be 2 h. $20'$ between the point D and the meridian G XII, in the line AD. Therefore, take the first $20'$ of the hour-

scale in your compasses, and set off from D to 2; then take 1 h. $20'$, and set off from D to 1; 2 h. $20'$, and set off from D to 12; 3 h. $20'$, from D to 11; 4 h. $20'$ from D to 10; and 5 h. $20'$ from D to 9, which will be $40'$ from A.

Then, on the other side of the substilar line GB, you take $40'$ from the beginning of the scale, and set off from D to 3; then take 1 h. $40'$, and set off from D to 4; also 2 h. $40'$, and set off from D to 5; and so on to 8, which will be $20'$ from Q. Then from G the centre, through the several points 2, 1, 12, 11, 10, 9, on one side, and 3, 4, 5, 6, 7, 8, on the other, you draw the hour-lines, as in the figure they appear. The hour of VIII need only be drawn for the morning; for the sun goes off from this west decliner $20'$ before VIII in the evening.—The quarters, &c. are all set off in the same manner from the hour scale as the above hours were.

The next thing is fixing the stile or gnomon, which is always placed in the substilar line GB, and which is already drawn. The stile above the plane has been found to be $33^{\circ} 5'$: therefore with any radius GB describe an obscure arch, upon which set off $33^{\circ} 5'$ from B to S, and draw GS, and the angle SGB will be the true height of the gnomon above the substilar GB.

II. The DIALLING Trigon is another new instrument of great utility in the practice of dialling; and was also contrived by the late Mr Martin. It is composed of two graduated scales and a plane one. On the scale AB (fig. 36.) is graduated the line of latitudes; and on the scale AC, the line of hours: these properly conjoined with the plane scale BD, as shown in the figure, truly represent the gnomonical triangle, and is properly called a *dialling trigon*. The hour-scale AC is here of its full length; so that the hours, halves, quarters, &c. and every single minute (if required) may be immediately set off by a steel point; and from what has before been observed in regard to the sector, it must appear that this method by the trigon is the most expeditious way of drawing dials that any mechanism of this sort can afford. As an example of the application of this trigon in the construction of an horizontal dial for the latitude of London $51^{\circ} 32'$, you must proceed as follows: Apply the trigon to the 6 o'clock line *af* (fig. 29.) on the morning side, so that the line of latitudes may coincide with the 6 o'clock line, and the beginning of the divisions coincide with the centre *a*; and at $51^{\circ} 32'$ of the line of latitudes place the 6 o'clock edge of the line of hours, and the other end or beginning of the scale close against the plane scale *cd*, as by the figure at *d*, and fastening these bars down by the several pins placed in them to the paper and board, then the hours, quarters, &c. are all marked off with a steel point instantly, and the hour lines drawn through them as before, and as shown in the figure. When this is done for the side *af* or morning hours, you move the scale of latitudes and hours to the other side *ce*, or afternoon side, and place the hour-scale to $51^{\circ} 32'$ as before, and push down the hours, quarters, &c. and draw the lines through them for the afternoon hours, which is clearly represented in the figure.

In like manner is an erect north or south dial drawn (see fig. 30.) the operation being just the same, only reversing the hours as in the figure, and marking the angles.

angles of the stile's height equal to the complement of the latitude.

This trigon may be likewise used for drawing *vertical declining dials* (fig. 31.) as it is with the same facility applied to the lines AQ, GB, and the hours and quarters marked off as before directed.

On the scale BD of the trigon is graduated a line of chords, which is found useful for laying off the necessary angles of the stile's height. The scales of this trigon, when not in use, lie very close together, and pack up into a portable case for the pocket.

D I A

Dialling
Lines
||
Dialogue.

DIALLING Lines, or Scales, are graduated lines, placed on rules, or the edges of quadrants, and other instruments, to expedite the construction of dials. See Plate CLXXI.

DIALLING-Sector. See *DIALLING*, p. 212. and Plate CLXXIV.

DIALLING Sphere, is an instrument made of brass, with several semicircles sliding over one another, on a moving horizon, to demonstrate the nature of the doctrine of spherical triangles, and to give a true idea of the drawing of dials on all manner of planes.

DIALLING-Trigon. See *DIALLING*, p. 213, and Plate CLXXIV.

DIALLING, in a mine, called also *Plumming*, is the using of a compass (which they call *dial*), and a long line, to know which way the load or vein of ore inclines, or where to shift an air-shaft, or bring an adit to a desired place.

DIALOGISM, in *Rhetoric*, is used for the soliloquy of persons deliberating with themselves. See *SOLILOQUY*.

DIALOGUE, in matters of literature, a conversation between two or more persons either by writing or by word of mouth.

Composition and Style of written DIALOGUE. As the end of speech is conversation, no kind of writing can be more natural than dialogue, which represents this. And accordingly we find it was introduced very early, for there are several instances of it in the Mosaic history. The ancient Greek writers also fell very much into it, especially the philosophers, as the most convenient and agreeable method of communicating their sentiments and instructions to mankind. And indeed it seems to be attended with very considerable advantages, if well and judiciously managed. For it is capable to make the driest subjects entertaining and pleasant, by its variety, and the different characters of the speakers. Besides, things may be canvassed more minutely, and many lesser matters, which serve to clear up a subject, may be introduced with a better grace, by questions and answers, objections and replies, than can be conveniently done in a continued discourse. There is likewise a further advantage in this way of writing, that the author is at liberty to choose his speakers: and therefore, as Cicero has well observed, when we imagine that we hear persons of an established reputation for wisdom and knowledge talking together, it necessarily adds a weight and authority to the discourse, and more closely engages the attention. The subject-matter of it is very intensive; for whatever is a proper argument of discourse, public or private, serious or jocosé; whatever is fit for wise and ingenious

D I A

men to talk upon, either for improvement or diversion, *Dialogue.* is suitable for a dialogue.

From this general account of the nature of dialogue, it is easy to perceive what kind of style best suits it. Its affinity with *EPISTLES*, shows there ought to be no great difference between them in this respect. Indeed, some have been of opinion, that it ought rather to sink below that of an epistle, because dialogues should in all respects represent the freedom of conversation; whereas epistles ought sometimes to be composed with care and accuracy, especially when written to superiors. But there seems to be little weight in this argument, since the design of an epistle is to say the same things, and in the same manner, as the writer judges would be most fit and proper for him to speak, if present. And the very same thing is designed in a dialogue, with respect to the several persons concerned in it. Upon the whole, therefore, the like plain, easy, and simple style, suited to the nature of the subject, and the particular characters of the persons concerned, seems to agree to both.

But as greater skill is required in writing dialogues than letters, we shall give a more particular account of the principal things necessary to be regarded in their composition, and illustrate them chiefly from Cicero's excellent Dialogues concerning an Orator.—A dialogue, then consists of two parts; an *introduction*, and *the body of the discourse*.

1. The *introduction* acquaints us with the place, time, persons, and occasion of the conversation. Thus Cicero places the scene of his dialogues at Crassus's country seat; a very proper recess, both for such a debate and the parties engaged in it. And as they were persons of the first rank, and employed in the greatest affairs of state, and the discourse held them for two days; he represents it to have happened at the time of a festival, when there was no business done at Rome, which gave them an opportunity to be absent.

And because the greatest regard is to be had in the choice of the persons, who ought to be such as are well acquainted with the subject upon which they discourse; in these dialogues of Cicero, the two principal disputants are Crassus and Antony, the greatest orators of that age, and therefore the most proper persons to dispute upon the qualifications necessary for their art. One would think it scarce necessary to observe, that the conference should be held by persons who lived at the same time, and so were capable to converse together. But yet some good writers have run into the impropriety of feigning dialogues between persons who lived at distant times. Plato took this method, in which he has been followed by Macrobius. But others,

who

Fig. 1.

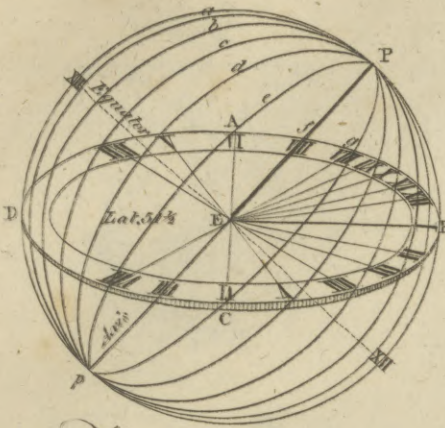


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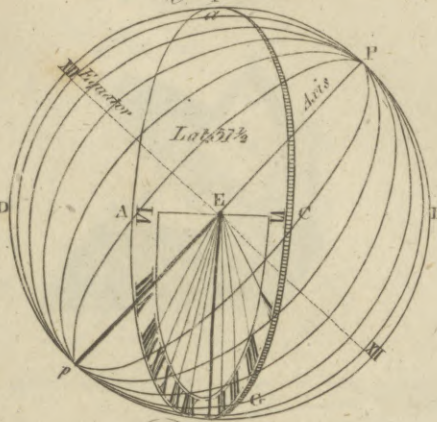


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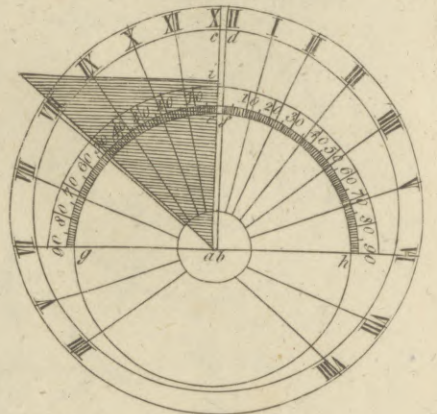


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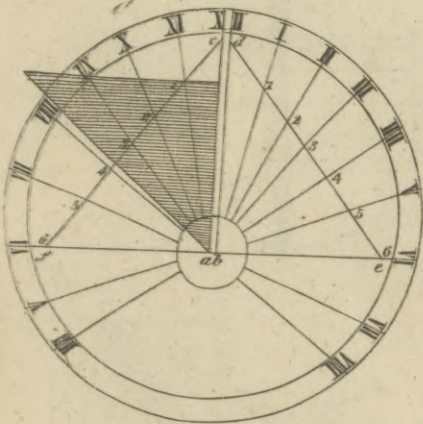


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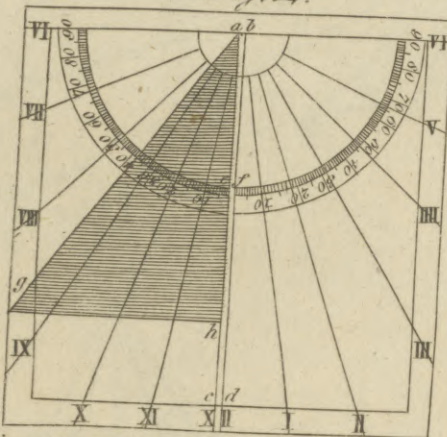


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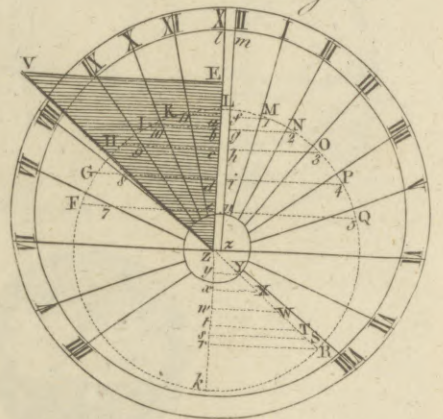


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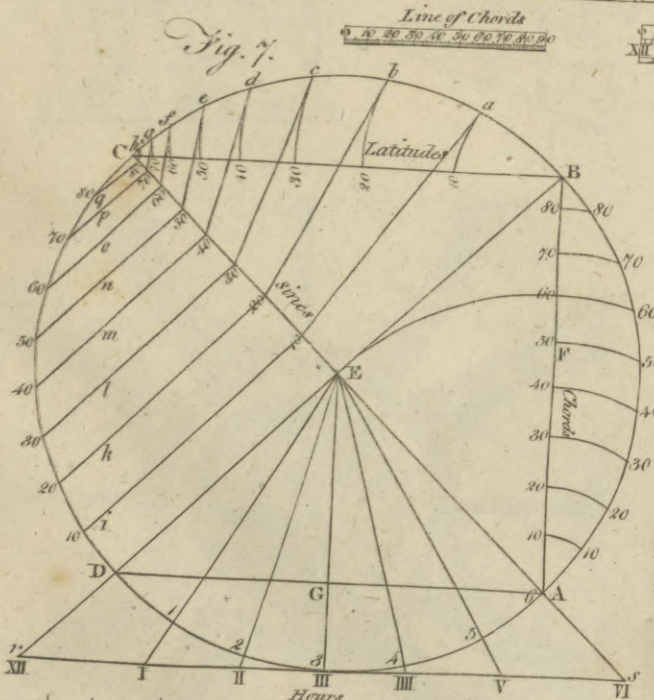
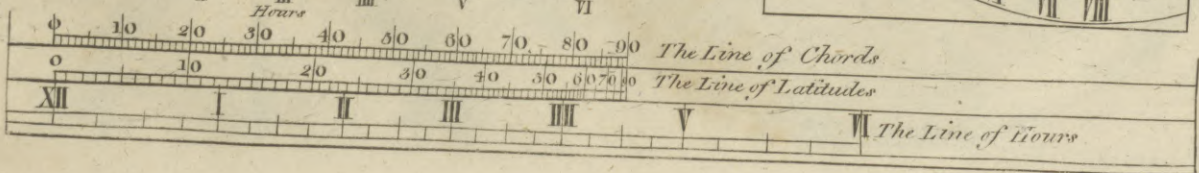
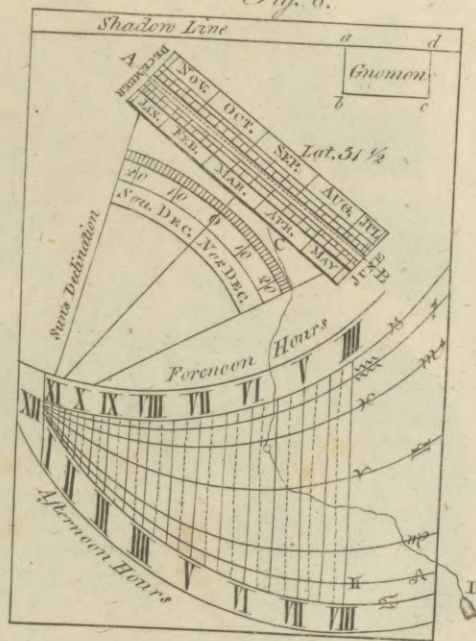


Fig. 8.



DIALLING.

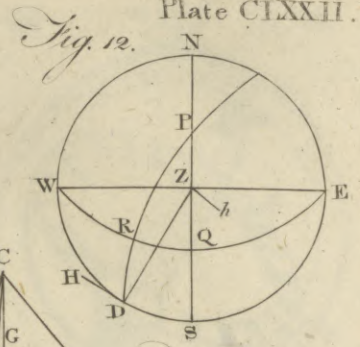
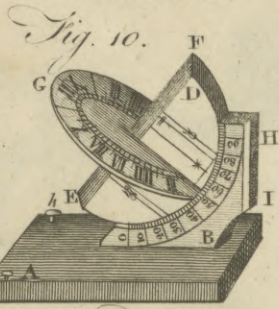
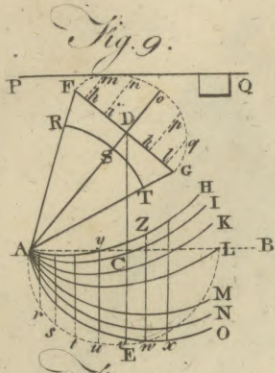


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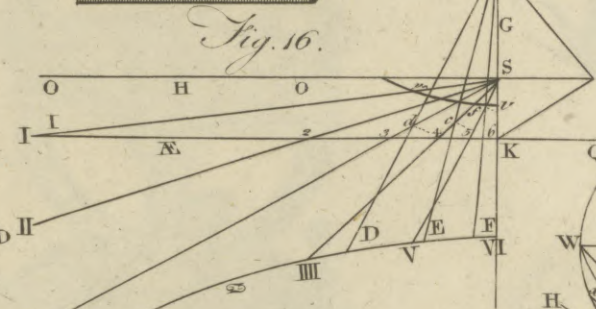
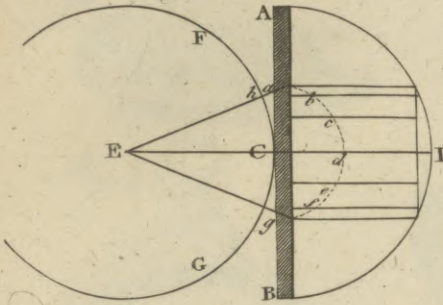


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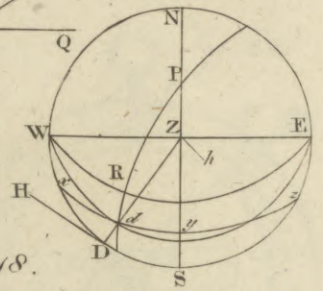


Fig. 18.



Fig. 13.

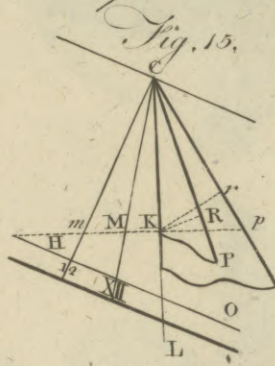
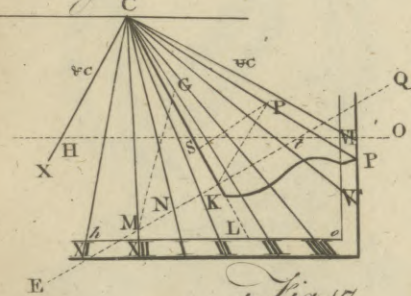
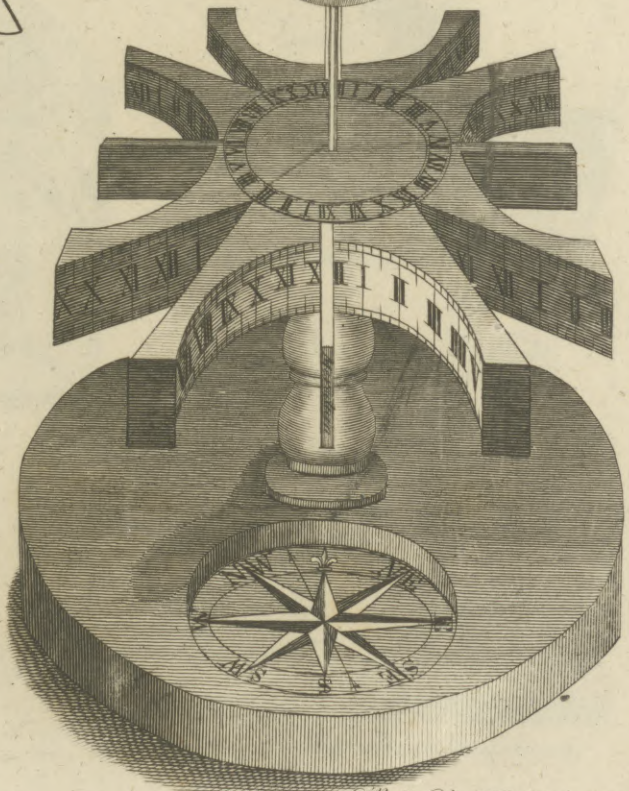
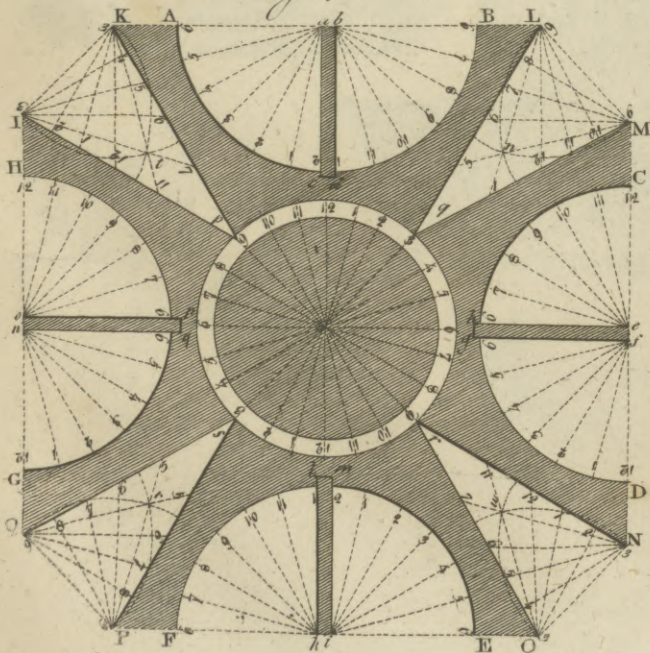
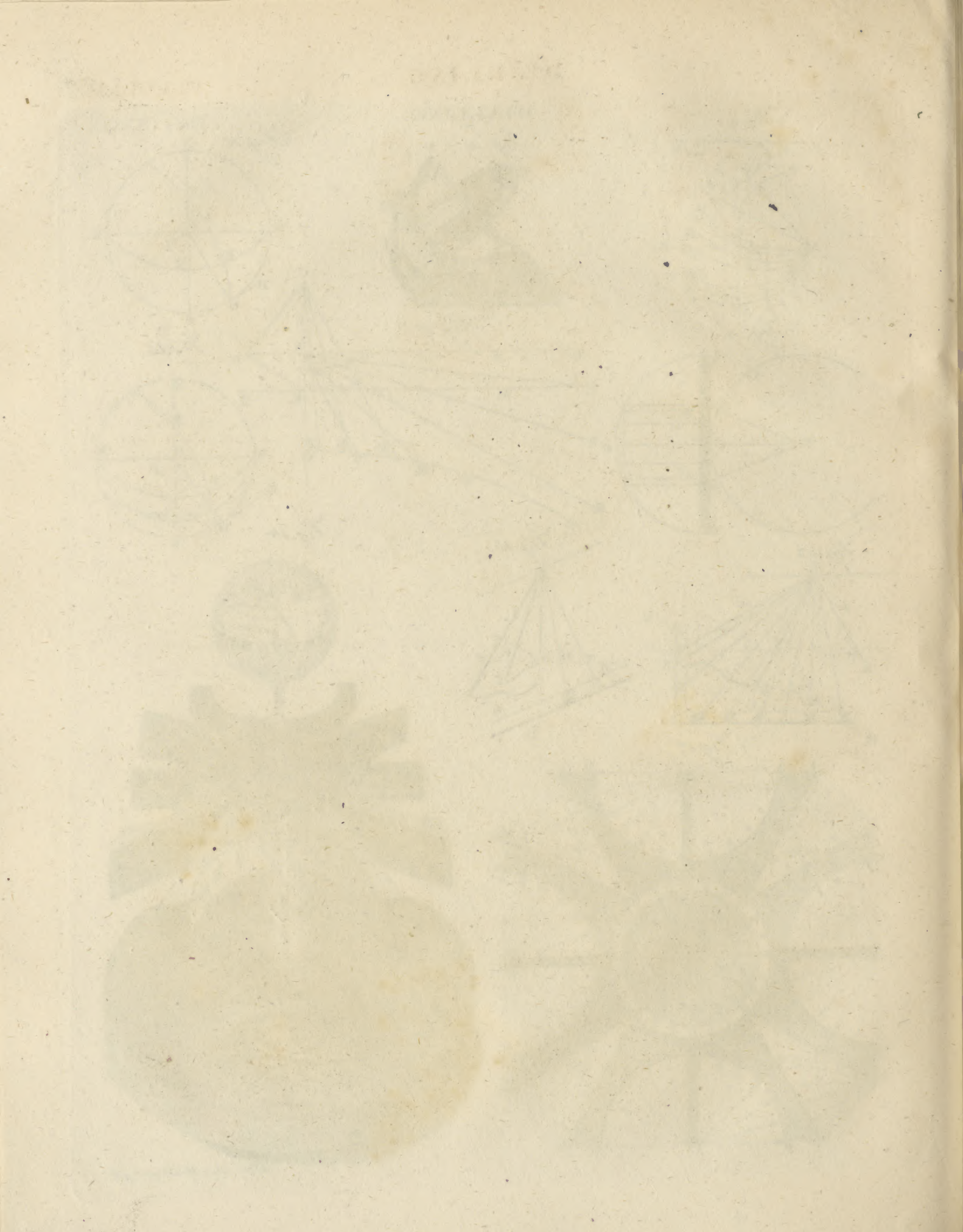


Fig. 17.





DIALLING.

Fig. 19.

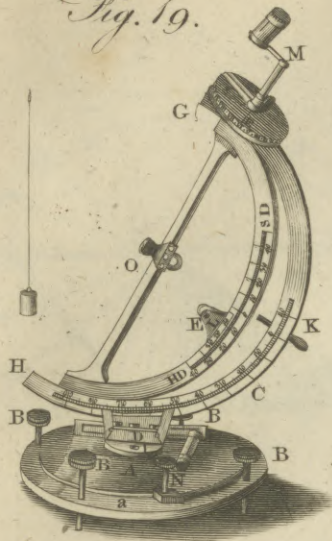


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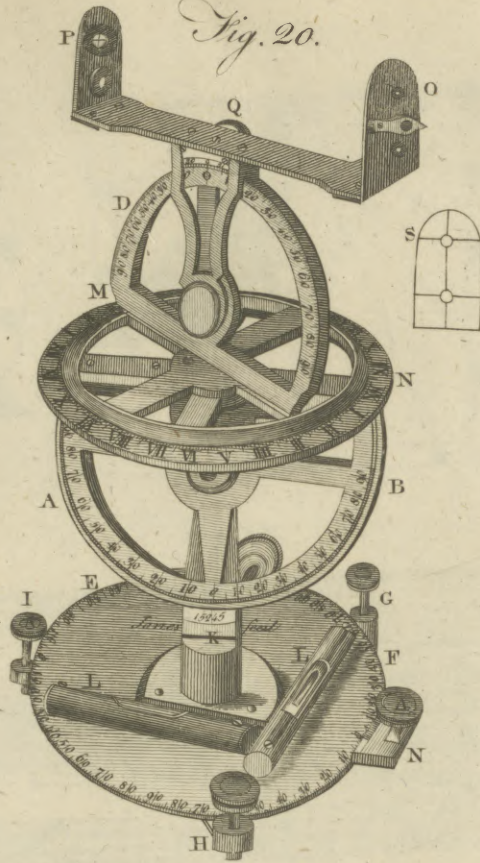


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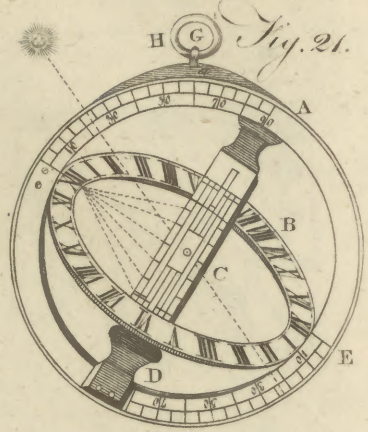


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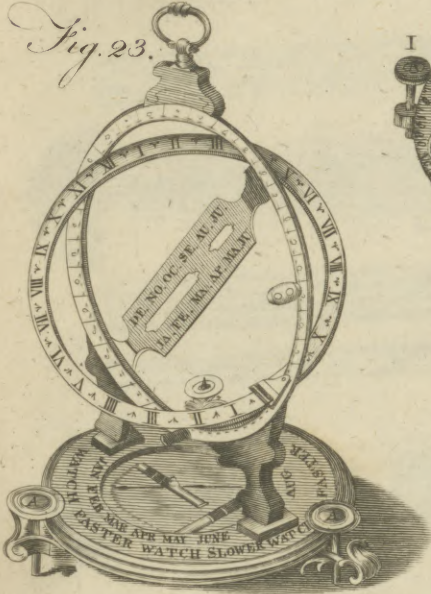


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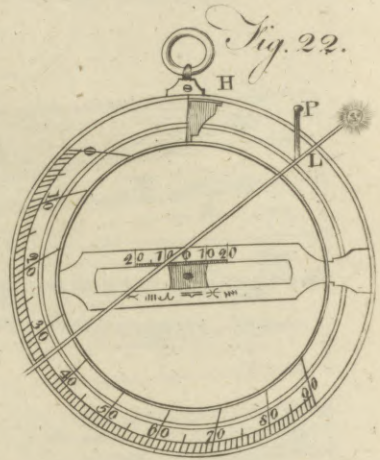


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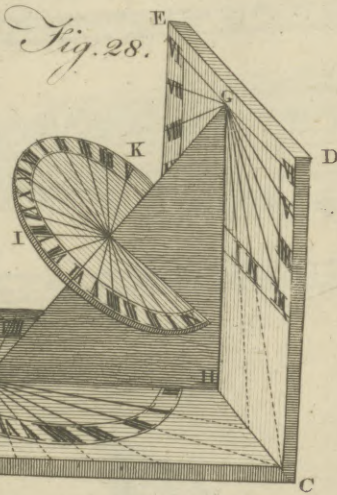


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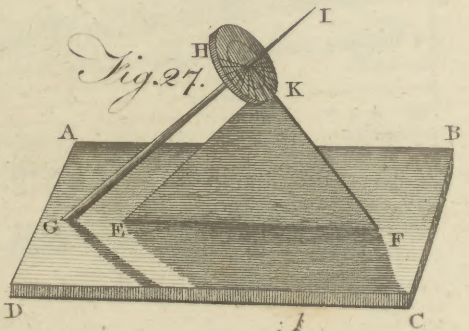


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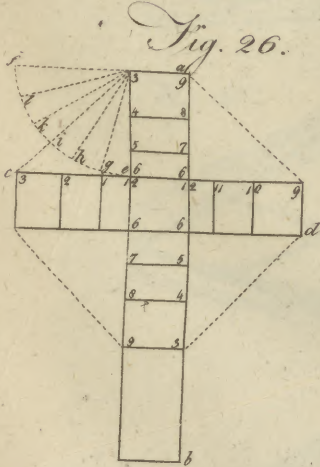


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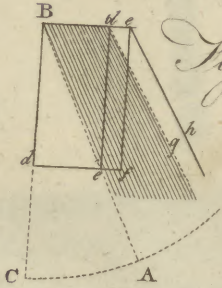
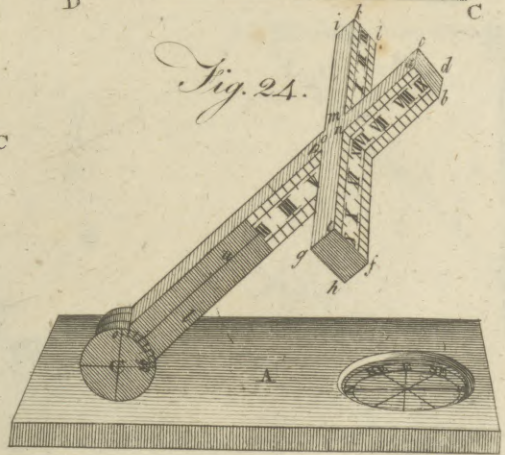


Fig. 24.



W. Bell Pin. Wal. Sculptor fecit.

DIALLING.

Fig. 29.

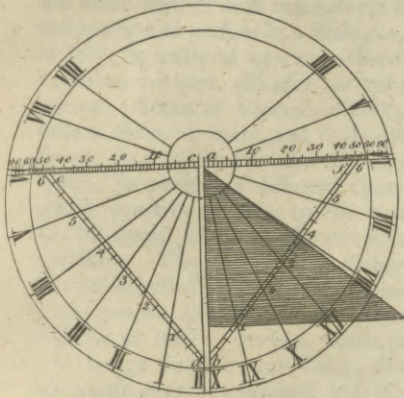


Fig. 30.

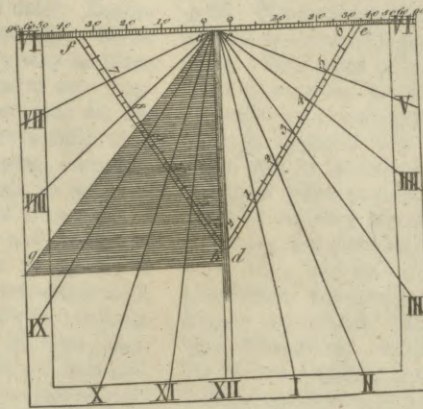


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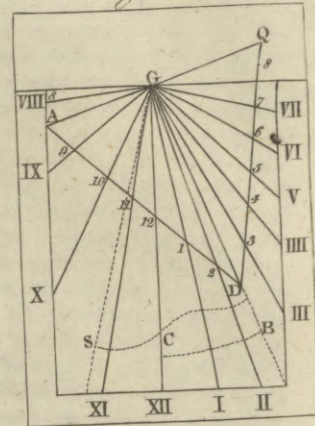


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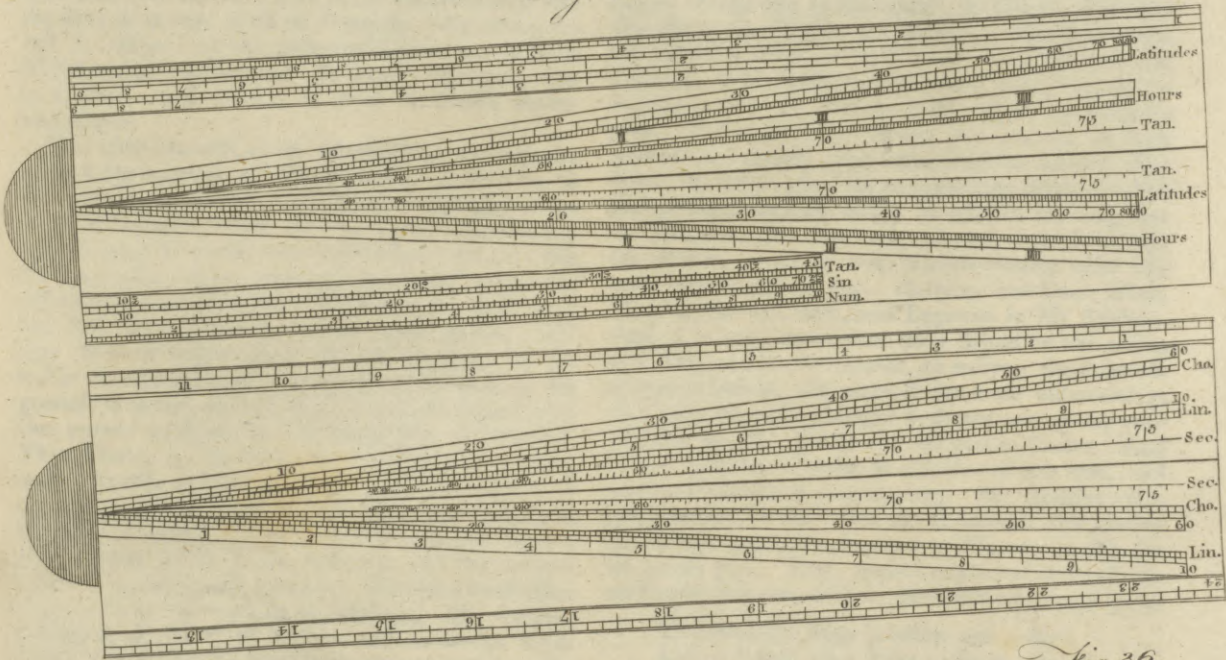


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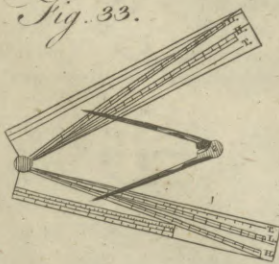


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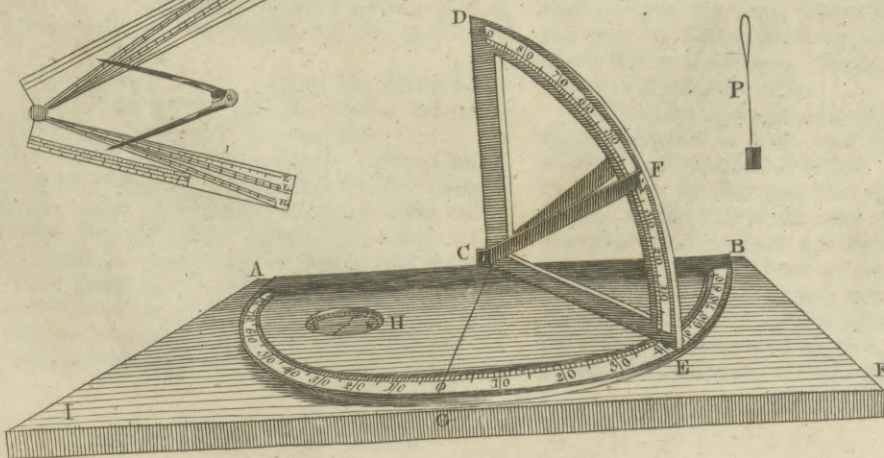


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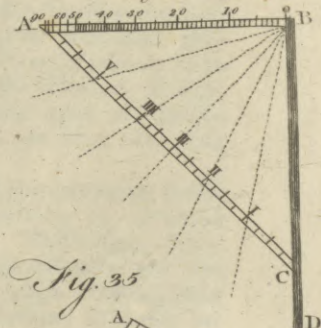


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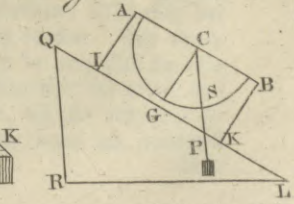
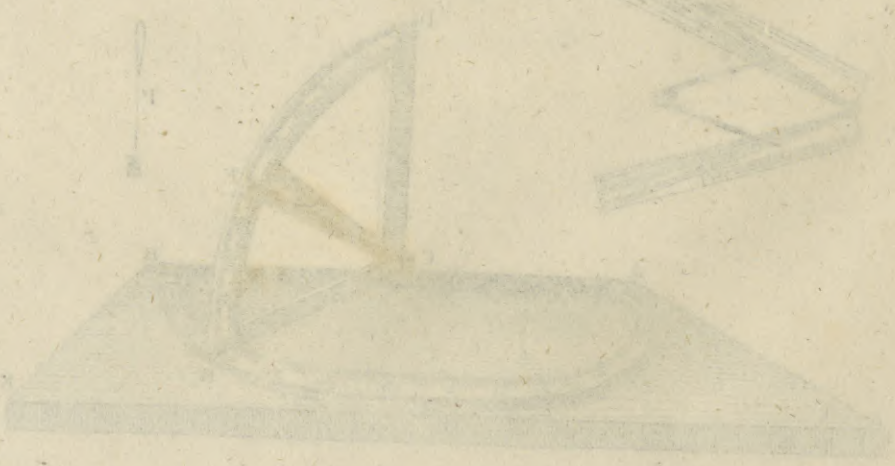
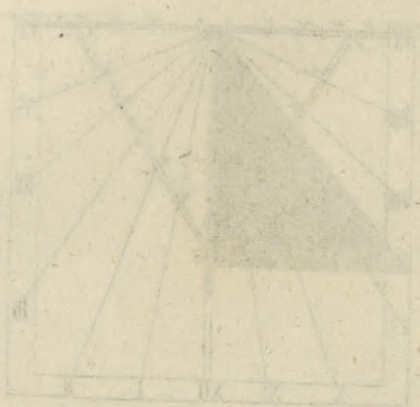


PLATE I

PLATE II



Dialogue. who have been willing to bring persons to discourse together, who lived in different ages, without such inconsistency, have wrote dialogues of the dead. Lucian has made himself most remarkable in this way. As to the number of persons in a dialogue, they may be more or less; so many as can conveniently carry on a conversation without disorder or confusion may be admitted. Some of Cicero's dialogues have only two, others three or more, and those concerning an orator seven. And it is convenient they should all, in some respects, be persons of different characters and abilities: which contributes both to the variety and beauty of the discourse, like the different attitudes of figures in a picture. Thus, in Cicero's dialogues last mentioned, Crassus excelled in art, Antony principally for the force of his genius, Catullus for the purity of his style, Scævola for his skill in the law, Cæsar for wit and humour; and though Sulpitius and Cotta, who were young men, were both excellent orators, yet they differed in their manner. But there should be always one chief person, who is to have the main part of the conversation; like the hero in an epic poem or a tragedy, who excels the rest in action; or the principal figure in a picture, which is most conspicuous. In Plato's dialogues, this is Socrates; and Crassus in those of Cicero above-mentioned.

It is usual likewise, in the introduction, to acquaint us with the occasion of the discourse. Indeed this is not always mentioned; as in Cicero's dialogue of the parts of oratory, where the son begins immediately with desiring his father to instruct him in the art. But it is generally taken notice of, and most commonly represented as accidental. The reason of which may be, that such discourses appear most natural; and may likewise afford some kind of apology for the writer in managing his different characters, since the greatest men may be supposed not always to speak with the utmost exactness in an accidental conversation. Thus Cicero, in his dialogues concerning an orator, makes Crassus occasionally fall upon the subject of oratory, to divert the company from the melancholy thoughts of what they had been discoursing of before, with relation to the public disorders, and the dangers which threatened their country. But the introduction ought not to be too long and tedious. Mr Addison complains of this fault in some authors of this kind. "For though (as he says) some of the finest treatises of the most polite Latin and Greek writers are in dialogue, as many very valuable pieces of French, Italian, and English, appear in the same dress; yet in some of them there is so much time taken up in ceremony, that, before they enter on their subject, the dialogue is half over."

2. We come now to the *body* of the discourse, in which some things relating to the persons, and others to the subject, are proper to be remarked.

And as to the *persons*, the principal thing to be attended to is to keep up a justness of character through the whole. And the distinct characters ought to be so perfectly observed, that from the very words themselves, it may be always known who is the speaker. This makes dialogue more difficult than single description, by reason of the number and variety of characters which are to be drawn at the same time, and each of them managed with the greatest propriety. The prin-

cipal speaker should appear to be a person of great sense and wisdom, and best acquainted with the subject. No question ought to be asked him, or objection started to what he says, but what he should fairly answer. And what is said by the rest should principally tend to promote his discourse, and carry it through in the most artful and agreeable manner. When the argument is attended with difficulties, one other person or more may be introduced, of equal reputation, or near it, but of different sentiments, to oppose him, and maintain the contrary side of the question. This gives opportunity for a thorough examination of the point on both sides, and answering all objections. But if the combatants are not pretty equally matched, and masters of the subject, they will treat it but superficially. And through the whole debate there ought not to be the least wrangling, peevishness, or obstinacy; nothing but the appearance of good humour and good breeding, the gentleman and the friend, with a readiness to submit to conviction and the force of truth, as the evidence shall appear on one side or the other. In Cicero, these two characters are Crassus and Antony. And from them Mr Addison seems to have taken his Philander and Cynthio, in his *Dialogues upon the usefulness of ancient medals*, which are formed pretty much on Cicero's plan. When younger persons are present, or such who are not equally acquainted with the subject, they should be rather upon the enquiry than dispute: And the questions they ask should be neither too long nor too frequent, that they may not too much interrupt the debate, or appear over talkative before wiser and more experienced persons. Sulpitius and Cotta sustain this character in Cicero, and Eugenius in Mr Addison. And it is very convenient there should be one person of a witty and jocular humour, to enliven the discourse at proper seasons, and make it the more entertaining, especially when the dialogue is drawn out to any considerable length. Cæsar has this part in Cicero. And in Mr Addison, Cynthio is a person of this turn, and opposes Philander in a merry way. Mr Addison's subject admitted of this: but the seriousness and gravity of Cicero's argument required a different speaker for the jocular part. Many persons ought not to speak immediately after one another. Horace's rule for plays is:

To crowd the stage is odious and absurd.

Let no fourth actor strive to speak a word.

Though Scaliger and others think a fourth person may sometimes be permitted to speak in the same scene without confusion. However, if this is not commonly to be allowed upon the stage, where the actors are present, and may be distinguished by their voice and habit; much less in a dialogue, where you have only their names to distinguish them.

With regard to the *subject*, all the arguments should appear probable at least, and nothing be advanced which may seem weak or trivial. There ought also to be an union in dialogue, that the discourse may not ramble, but keep up to the main design. Indeed, short and pleasant digressions are sometimes allowable for the ease and entertainment of the reader. But every thing should be so managed, that he may still be able to carry on the thread of the discourse in his mind, and keep the main argument in view, till the whole is finished. The writers of dialogue have not confined

Dialogue
||
Diamastigosis.

their discourses to any certain space of time; but either concluded them with the day, or broke off when their speakers have been tired, and reassumed them again the next day. Thus Cicero allows two days for his three dialogues concerning an orator; but Mr Addison extends his to three days, allowing a day for each. Nor has the same method always been observed in composing dialogues. For sometimes the writer, by way of narrative, relates a discourse which passed between other persons. Such are the dialogues of Cicero and Mr Addison last mentioned, and many others both of the ancients and moderns. But, at other times, the speakers are introduced in person, as talking to each other. This, as Cicero observes, prevents the frequent repetition of those words, *he said*, and *he replied*; and by placing the hearer, as it were, in the conversation, gives him a more lively representation of the discourse, which makes it the more affecting. And therefore Cicero, who wrote his *dialogue of old age* in this manner, in which Cato, who was then in years, largely recounts the satisfaction of life which may be enjoyed in old age, tells his friend Atticus, he was himself so affected with that discourse, that when he reviewed it sometimes, he fancied they were not his own words, but Cato's. There are some other dialogues of Cicero, written in the same way; as that *Of friendship* and *Of the parts of the Oratory*. And both Plato and Lucian generally chose this method.

DIALOGUE, in dramatic composition. See **POETRY**, chap. ii. 22. 23.

DIALTHÆA, in *Pharmacy*, an unguent much used as a resolvent; so called from **ALTHÆA**, or marsh-mallows, which is the principal ingredient in it.

DIALYSIS, in *Grammar*, a mark or character, consisting of two points, $\cdot\cdot$, placed over two vowels of a word, in order to separate them, because otherwise they would make them a diphthong, as *Mosaic*, &c.

DIAMASTIGOSIS, a festival at Sparta in honour of Diana Orthia, which received that name *απο του μαστιγου*, from *whipping*, because boys were whipped before the altar of the goddess. These boys, called *Bomonicæ*, were originally free-born Spartans, but in the more delicate ages they were of mean birth, and generally of a slavish origin. This operation was performed by an officer in a severe and unfeeling manner; and that no compassion should be raised, the priest stood near the altar with a small light statue of the goddess, which suddenly became heavy and insupportable if the lash of the whip was more lenient or less rigorous. The parents of the children attended the solemnity, and exhorted them not to commit any thing either by fear or groans, that might be unworthy of Laconian education. These flagellations were so severe, that the blood gushed in profuse torrents, and many expired under the lash of the whip, without uttering a groan, or betraying any marks of fear. Such a death was reckoned very honourable; and the corpse was buried with much solemnity with a garland of flowers on its head. The origin of this festival is unknown. Some suppose that Lycurgus first instituted it to inure the youth of Lacedemon to bear labour and fatigue, and render them insensible to pain and wounds. Others maintain, that it is a mitigation of an oracle, which ordered that human blood should be shed on Diana's altar; and according to their opinion, Orestes first in-

roduced that barbarous custom, after he had brought the statue of Diana Taurica into Greece. There is another tradition which mentions, that Pausanias, as he was offering up prayers and sacrifices to the gods, before he engaged with Mardonius, was suddenly attacked by a number of Lydians, who disturbed the sacrifice, and were at last repelled with staves and stones, the only weapons with which the Lacedemonians were provided at that moment. In commemoration of this, therefore, that whipping of boys was instituted at Sparta, and after that the Lydian procession.

DIAMETER, in *Geometry*, a right line passing through the centre of a circle, and terminated at each side by the circumference thereof. See **GEOMETRY**.

DIAMOND, the most highly valued of precious stones. The finest diamonds are perfectly transparent and colourless, of a regular form, and entirely free from flaws and veins. They have been distinguished by lapidaries into *oriental* and *occidental*. But these terms are not expressive of the country from which they are brought, but merely of their qualities and value, the oriental being reckoned the finest and hardest, and the occidental of inferior value. See **CHEMISTRY** and **MINERALOGY Index**.

Cornish DIAMOND, a name given by many to the rock crystals found in the mines of tin in Cornwall. These crystals are usually bright and clear, and are found most frequently in the form of an hexangular column terminated at each end by an hexangular pyramid.

Rose DIAMOND is one that is quite flat underneath, with its upper part cut in divers little faces, usually triangles, the uppermost of which terminate in a point. In rose diamonds, the depth of the stone from the base to the point must be half the breadth of the diameter of the base of the stone. The diameter of the crown must be $\frac{2}{3}$ of the diameter of the base. The perpendicular, from the base to the crown, must be $\frac{1}{3}$ of the diameter of the stone. The lozenges which appear in all circular rose diamonds, will be equally divided by the ribs that form the crown; and the upper angles or facets will terminate in the extreme point of the stone, and the lower in the base or girdle.

Rough DIAMOND, is the stone as nature produces it in the mines.

A rough diamond must be chosen uniform, of a good shape, transparent, not quite white, and free of flaws and shivers. Black, rugged, dirty, flawey, veiny stones, and all such as are not fit for cutting, they use to pound in a steel mortar made for that purpose; and when pulverized, they serve to saw, cut, and polish the rest. Shivers are occasioned in diamonds by this. That the miners, to get them more easily out of the vein, which winds between two rocks, break the rocks with huge iron levers, which shakes, and fills the stone with cracks and shivers. The ancients had two mistaken notions with regard to the diamond: the first, That it became soft, by steeping it in hot goats blood; and the second, that it is malleable, and bears the hammer. Experience shows us the contrary; there being nothing capable of mollifying the hardness of this stone; though its hardness be not such, that it will endure being struck at pleasure with the hammer.

Facitious DIAMONDS. Attempts have been made to produce

Diamond, Diana. produce artificial diamonds, but with no great success. — These made in France called *temple diamonds*, on account of the Temple at Paris, where the best of them are made, fall vastly short of the genuine ones; accordingly they are but little valued, though the consumption thereof is pretty considerable for the habits of the actors on the stage, &c. See PASTES.

DIAMOND, in the glass trade, an instrument used for squaring the large plates or pieces; and, among glaziers, for cutting their glass.

These sorts of diamonds are differently fitted up. That used for large pieces, as looking glasses, &c. is set in an iron ferril, about two inches long, and a quarter of an inch in diameter; the cavity of the ferril being filled up with lead, to keep the diamond firm: there is also a handle of box or ebony fitted to the ferril, for holding it by.

DIAMOND, in *Heraldry*, a term used for expressing the black colour in the achievements of peerage.

Guillim does not approve of blazoning the coats of peers by precious stones instead of metals and colours; but the English practice allows it. Morgan says the diamond is an emblem of fortitude.

DIANA, the goddess of hunting. According to Cicero, there were three of this name; a daughter of Jupiter and Proserpine, who became mother of Cupid; a daughter of Jupiter and Latona; and a daughter of Upris and Glaucus. The second is the most celebrated, and to her all the ancients allude. She was born at the same birth as Apollo: and the pains which she saw her mother suffer during her labour gave her such an aversion to marriage, that she obtained of her father to live in perpetual celibacy, and to preside over the travails of women. To shun the society of men, she devoted herself to hunting; and was always accompanied by a number of chosen virgins, who, like herself, abjured the use of marriage. She is represented with a quiver and attended with dogs, and sometimes drawn in a chariot by two white stags. Sometimes she appears with wings, holding a lion in one hand, and a panther in the other, with a chariot drawn by two heifers, or two horses of different colours. She is represented as tall; her face has something manly; her legs are bare, well shaped, and strong; and her feet are covered with a buskin worn by huntresses among the ancients. She received many surnames, particularly from the places where her worship was established, and from the functions over which she presided. She was called *Lucina*, *Ilythia*, or *Juno Pronuba*, when invoked by women in childbed; and *Trivia* when worshipped in the crossways, where her statues were generally erected. She was supposed to be the same as the moon and Proserpine or Hecate, and from that circumstance she was called *Triformis*; and some of her statues represented her with three heads, that of a horse, a dog, and a boar. Her power and functions under these three characters have been beautifully expressed in these two verses:

*Terret, lustrat, agit, Proserpina, Luna, Diana,
Ima, suprema, feras, sceptrum, fulgore, sagitta.*

She was also called *Agrotera*, *Orithia*, *Taurica*, *Delia*, *Cynthia*, *Aricia*, &c. She was supposed to be the same as the Isis of the Egyptians, whose worship was introduced into Greece with that of Osiris under the name

VOL. VII. Part. I.

of Apollo. When Typhon waged war against the gods, Diana metamorphosed herself into a cat to avoid his fury. She is generally known, in the figures that represent her, by the crescent on her head, by the dogs which attend her, and by her hunting habit. The most famous of her temples was that of Ephesus, which was one of the seven wonders of the world: (See EPHE-SUS.) She was there represented with a great number of breasts, and other symbols, which signified the earth or Cybele. Though she was the patroness of chastity, yet she forgot her dignity to enjoy the company of Endymion, and the very familiar favours which she granted to Pan and Orion are well known: (See ENDYMION, PAN, ORION). The inhabitants of Taurica were particularly attached to the worship of this goddess, and they cruelly offered on her altar all the strangers that were shipwrecked on their coasts. Her temple in Aricia was served by a priest who had always murdered his predecessor; and the Lacedemonians yearly offered her human victims till the age of Lycurgus, who changed this barbarous custom for the sacrifice of flagellation. The Athenians generally offered her goats; and others a white kid, and sometimes a boar pig or an ox. Among plants, the poppy and the dittany were sacred to her. She, as well as her brother Apollo, had some oracles; among which those of Egypt, Cilicia, and Ephesus, are the most known.

DIANÆ ARBOR, or **ARBOR LUNÆ**, in *Chemistry*, the beautiful arborecent form of silver, dissolved in nitric acid, and precipitated by another metal; so called from its resembling the trunk, branches, leaves, &c. of a tree. See CHEMISTRY Index.

DIANÆ Fanum, in *Ancient Geography*, a promontory of Bithynia: now *Scutari*, a citadel opposite to Constantinople, on the east side of the Bosphorus Thracicus.

DIANÆ Portus, a port of Corsica, situated between Aleria and Mariana, on the east side.

DIANDRIA (from *dis*, twice, and *andros*, a man), the name of the second class in Linnæus's sexual system, consisting of hermaphrodite plants; which, as the name imports, have flowers with two stamina or male organs.

The orders in this class are three, derived from the number of styles or female parts. Most plants with two stamina have one style; as jessamine, lilach, privet, veronica, and bastard alaternus; vernal grass has two styles; pepper, three.

DIANIUM, in *Ancient Geography*, a town of the Contestani, in the Hither Spain; famous for a temple of Diana, whence the name: now *Denia*, a small town of Valencia, on the Mediterranean. Also a promontory near Dianium: now *El Cabo Martin*, four leagues from Denia, running out into the Mediterranean.

DIANTHERA, a genus of plants belonging to the diandria class, and in the natural method ranking under the 40th order, *Personate*. See BOTANY Index.

DIANTHUS, CLOVE GILLIFLOWER, CARNATION, PINK, SWEET-WILLIAM, &c. a genus of plants belonging to the decandria class, and in the natural method ranking under the 22d order, *Caryophyllei*. See BOTANY Index.

There are a great number of species; but not more than four that have any considerable beauty as garden

E e flowers,

Dianæ
||
Dianthus.

Dianthus. flowers, each of which furnishes some beautiful varieties. 1. The caryophyllus, or clove gilliflower, including all the varieties of carnation. It rises with many short trailing shoots from the root, garnished with long, very narrow, evergreen leaves; and amidst them upright slender flower-stalks, from one to three feet high, emitting many side shoots; all of which, as well as the main stalk, are terminated by large solitary flowers, having short oval scales to the calyx, and crenated petals. The varieties of this are very numerous, and unlimited in the diversity of flowers. 2. The deltoides, or common pink, rises with numerous short leafy shoots crowning the root, in a tufted head close to the ground, closely garnished with small narrow leaves; and from the ends of the shoots many erect flower-stalks, from about 6 to 15 inches high, terminated by solitary flowers of different colours, single and double, and sometimes finely variegated. This species is perennial, as all the varieties of it commonly cultivated also are. 3. The *Chinensis*, Chinese, or Indian pink, is an annual plant with upright firm flower-stalks, branching erect on every side, a foot or 15 inches high, having all the branches terminated by solitary flowers of different colours and variegations, appearing from July to November. 4. The *barbatus*, or bearded dianthus, commonly called *sweet-william*. This rises with many thick leafy shoots, crowning the root in a cluster close to the ground; garnished with spear-shaped evergreen leaves, from half an inch to two inches broad. The stems are upright and firm, branching erect two or three feet high, having all the branches and main stem crowned by numerous flowers in aggregate clusters of different colours and variegations.

Culture. Though the carnations grow freely in almost any garden earth, and in it produce beautiful flowers, yet they are generally superior in that of a light loamy nature; and of this kind of soil the florists generally prepare a kind of compost in the following manner, especially for those fine varieties which they keep in pots. A quantity of loamy earth must be provided, of a light sandy temperature, from an upland or dry pasture field or common, taking the top spit turf and all, which must be laid in a heap for a year, and turned over frequently. It must then be mixed with about one third of rotten dung of old hotbeds, or rotten neats dung, and a little sea-sand, forming the whole into a heap again, to lie three, four, or six months, at which time it will be excellent for use; and if one parcel or heap was mixed with one of these kinds of dungs, and another parcel with the other, it will make a change, and may be found very beneficial in promoting the size of the flowers. This compost, or any other made use of for the purpose, should not be sifted, but only well broken with the spade and hands.—When great quantities of carnations are required, either to furnish large grounds, or for market, or when it is intended to raise new varieties, it is easily effected by sowing some seed annually in spring, in common earth, from which the plants will rise abundantly. Several good varieties may also be expected from the plants of each sowing; and possibly not one exactly like those from which the seed was sowed. The single flowers are always more numerous than the double ones; but it is from the latter only that we are to se-

lect our varieties. The season for sowing the seed is *Dianthus* any time from the 20th of March to the 15th of April.—The plants generally come up in a month after sowing; they must be occasionally weeded and watered till July, when they will be fit for transplanting into the nursery beds. These beds must be made about three feet wide, in an open situation; and taking advantage of moist weather, prick the plants therein four inches asunder, and finish with a gentle watering, which repeat occasionally till the plants have taken good root. Here they must remain till September, when they will be so well advanced in growth as to require more room; and should then have their final transplantation into other three feet wide beds of good earth, in rows 9 inches asunder, where they are to be placed in the order of quincunx. Here they are to remain all winter, until they flower, and have obtained an increase of the approved varieties of doubles by layers: and until this period, all the culture they require is, that if the winter should prove very severe, an occasional shelter of mats will be of advantage. In spring, the ground must be loosened with a hoe; they must be kept clear from weeds: and when the flower-stalks advance they are to be tied up to sticks, especially all those that promise by their large flower-pods to be doubles.

The only certain method of propagating the double varieties is by layers. The proper parts for layers are those leafy shoots arising near the crown of the root, which, when about five, six, or eight inches long, are of a proper degree of growth for layers. The general season for this work is June, July, and the beginning of August, as then the shoots will be arrived at a proper growth for that operation; and the sooner it is done after the shoots are ready the better, that they may have sufficient time to acquire strength before winter; these laid in June and July will be fit to take off in August and September, so will form fine plants in the month of October. The method of performing the work is as follows. First provide a quantity of small hooked sticks for pegs. They must be three or four inches long; and their use is to peg the layers down to the ground. Get ready also in a barrow a quantity of light rich mould, to raise the earth, if necessary, round each plant, and provide also a sharp penknife. The work is begun by stripping off all the leaves from the body of the shoots, and shortening those at top an inch or two evenly. Then choose a strong joint on the middle of the shoot or thereabouts, and on the back or under side thereof, cut with the penknife the joint half way through, directing your knife upward so as to slit the joint up the middle, almost to the next joint above, by which you form a kind of tongue on the back of the shoot; observing that the swelling skinny part of the joint remaining at the bottom of the tongue must be trimmed off, that nothing may obstruct the issuing of the fibres; for the layers always form their roots at that part. This done, loosen the earth about the plant; and, if necessary, add some fresh mould, to raise it for the more ready reception of the layers; then with your finger make a hollow or drill in the earth to receive the layer; which bend horizontally into the opening, raising the top upright, so as to keep the gash or slit part of the layer open; and, with one of the hooked sticks, peg down the

Dianthus,
Diapason.

the body of the layer, to secure it in its proper place and position, still preserving the top erect and the slit open, and draw the earth over it an inch or two, bringing it close about the erect part of the shoot; and when all the shoots of each plant are thus laid, give directly some water to settle the earth close, and the work is finished. In dry weather the waterings must be often repeated, and in five or six weeks the layers will have formed good roots. They must then be separated with a knife from the old plant, gently raised out of the earth with the point of a knife or trowel, in order to preserve the fibrous roots of the layers as entire as possible; and when thus taken up, cut off the naked sticky part at bottom close to the root, and trim the tops of the leaves a little. They are then ready for planting either into beds or pots. In November the fine varieties in pots should be moved to a sunny sheltered situation for the winter; and if placed in a frame, to have occasional protection from hard frost, it will be of much advantage. In the latter end of February, or some time in March, the layers in the small pots, or such as are in beds, should be transplanted with balls into the large pots, where they are to remain for flower. To have as large flowers as possible, curious florists clear off all side shoots from the flower stem, suffering only the main or top buds to remain for flowering. When the flowers begin to open, attendance should be given to assist the fine varieties, to promote their regular expansion, particularly the largest kinds called *bursters*, whose flowers are sometimes three or four inches diameter. Unless these are assisted by art, they are apt to burst open on one side, in which case the flower will become very irregular: therefore, attending every day at that period, observe, as soon as the calyx begins to break, to cut it a little open at two other places in the indenting at top with narrow-pointed scissars, and hereby the more regular expansion of the petals will be promoted: observing, if one side of any flower comes out faster than another, to turn the pot about, that the other side of the flower may be next the sun, which will also greatly promote its regular expansion. When any fine flower is to be blown as large and spreading as possible, florists place spreading paper collars round the bottom of the flowers, on which they may spread their petals to the utmost expansion. These collars are made of stiff white paper, cut circular about three or four inches over, having a hole in the middle to receive the bottom of the flower, and one side cut open to admit it. This is to be placed round the bottom of the petals in the inside of the calyx, the leaves of which are made to spread flat for its support. The petals must then be drawn out and spread upon the collar to their full width and extent; the longest ones undermost, and the next longest upon these; and so on; observing that the collar must nowhere appear wider than the flower; and thus a carnation may be rendered very large and handsome.

These directions will answer equally well for the propagation of the pinks and sweet-williams, though neither of these require such nicety in their culture as the carnations.

DIAPASON, in *Music*, a musical interval, by which most authors who have wrote on the theory of music use to express the OCTAVE of the Greeks.

DIAPASON, among the musical instrument makers, a

kind of rule or scale whereby they adjust the pipes of their organs, and cut the holes of their hautboys, flutes, &c. in due proportion for performing the tones, semitones, and concords, just.

DIAPASON *Diæx*, in *Music*, a kind of compound concord, whereof there are two sorts; the greater, which is in the proportion of 10-3; and the lesser, in that of 16 5.

DIAPASON *Diapente*, in *Music*, a compound consonance in a triple ratio, as 3-9. This interval says Martianus Capella, consists of 9 tones and a semitone; 19 semitones, and 38 dieses. It is a symphony made when the voice proceeds from the first to the twelfth sound.

DIAPASON *Diateffaron*, in *Music*, a compound concord founded on the proportion of 8 to 3. To this interval Martianus Capella allows 8 tones and a semitone; 17 semitones, and 34 dieses. This is when the voice proceeds from its first to its eleventh sound. The moderns would rather call it the *eleventh*.

DIAPASON *Ditone*, in *Music*, a compound concord, whose terms are as 10-4, or as 5-2.

DIAPASON *Semititone*, in *Music*, a compound concord, whose terms are in the proportion of 12-5.

DIAPÉDESIS, in *Medicine*, a transfusion of the fluids through the sides of the vessels that contain them, occasioned by the blood's becoming too much attenuated, or the pores becoming too patent.

DIAPENSIA, a genus of plants belonging to the pentandria class. See BOTANY *Index*.

DIAPENTE, in the ancient music, an interval marking the second of the concords, and with the diateffaron an octave. This is what in the modern music is called a *seventh*.

DIAPHANOUS, an appellation given to all transparent bodies, or such as transmit the rays of light.

DIAPHORESIS, in *Medicine*, an elimination of the humours in any part of the body through the pores of the skin. See PERSPIRATION.

DIAPHORETICS, among physicians, all medicines which promote perspiration.

DIAPHRAGM, (*Diaphragma*), in *Anatomy*, a part vulgarly called the *midriff*, and by anatomists *septum transversum*. It is a strong muscular substance, separating the breast or thorax from the abdomen or lower venter, and serving as a partition between the abdominal and the thoracic viscera. See ANATOMY *Index*.

It was Plato, as Galen informs us, who first called it *diaphragm*, from the verb διαφραττειν, to separate or be between two. Till his time it had been called φρενεις, from a notion that an inflammation of this part produced phrenzy; which is not at all warranted by experience, any more than that other tradition, that a transverse section of the diaphragm with a sword causes the patient to die laughing.

DIAPHORESIS, (*Διαφρορησις*), in *Rhetoric*, is used to express the hesitation or uncertainty of the speaker.

We have an example in Homer, where Ulysses, going to relate his sufferings to Alcinous, begins thus;

Τι πρῶτον τι δ' ἐπίειπα, τι δ' ὑστατιον καταλιξω?
Quid primum, quid deinde, quid postremo alloquar?

This figure is most naturally placed in the exordium or introduction to a discourse. See DOUBTING.

Diapason
||
Diaphoresis.

Diarbeck.

DIARBECK, or DIARBEKR, an extensive province of Eastern Asiatic Turkey; comprehending, in its latest extent, *Diarbekr*, properly so called, *Ierack* or *Chaldea*, and *Curdistan*, which were the ancient countries of Mesopotamia, Chaldea, and Assyria, with Babylon. It is called *Diarbeck*, *Diarbeker*, or *Diarbekr*, as signifying the "duke's country," from the word *dhyar* "a duke", and *bekr*, "country." It extends along the banks of the Tigris and Euphrates from north north-west to south-east, that is, from Mount Taurus, which divides it from Turcomania on the north, to the inmost recess of the Persian gulf on the south, about 600 miles; and from east to west, that is, from Persia on the east to Syria and Arabia Deserta on the west, in some places 200, and in others about 300 miles, but in the southern or lower parts not above 150. As extending also from the 30th to the 38th degree of latitude, it lies under part of the fifth and sixth climates, whose longest day is about 14 hours and a half, and so in proportion, and consequently enjoys a good temperature of air, as well as, in the greater part of it, a rich and fertile soil. There are indeed, as in all hot countries, some large deserts in it, which produce no sustenance for men or cattle, nor have any inhabitants. Being a considerable frontier towards the kingdom of Persia, it is very well guarded and fortified; but as for those many cities once so renowned for their greatness and opulence, they are at present almost dwindled into heaps of ruins. Bagdad, Moufful, Caramed, and a few more, indeed continue to be populous and wealthy; but the rest can scarce be called by any other name than that of sorry places. The rivers Euphrates and Tigris have almost their whole course through this country.

Diarbeck Proper is bounded on the north by Turcomania, on the west by Syria, on the south by part of Arabia Deserta and Irack Proper, and on the east by Curdistan. It was named by Moses *Padan-Aram*; the latter being the general name of Syria; and the former signifying *fruitful*, a proper epithet for this country, which is really so to a very high degree, especially on the northern side, where it yields corn, wine, oil, fruits, and all necessaries of life in great abundance. Formerly it was the residence of many famed patriarchs, yet was overrun with the grossest idolatry, not only in the time of Abraham's coming out of it, and Jacob's sojourning in it, but likewise during the time it continued under the dominion of the Assyrians, Babylonians, Medes, Persians, and Romans. It received indeed the light of the gospel soon after our Saviour's ascension, from St Thaddæus, who is said to have been sent thither by St Thomas, at the request of Abgarus king of Edeffa. This account, together with that monarch's letter to Jesus Christ, we have from Eusebius, who took it from the archives of that city; and the whole had passed current and uncontradicted for many ages, till our more enlightened moderns found reasons to condemn it; but whether right or wrong, it plainly appears that Christianity flourished here in a most eminent manner, till its purity was sullied about the beginning of the sixth century by the heresy of the Jacobites, whose patriarch still resides here, with a jurisdiction over all that sect in the Turkish dominions.

Diarbeck Proper is a beglerbegate, under which

are reckoned twelve sangiacs; and the principal towns in it are, Diarbekir or Caramed, Rika, Moufful, Orfa or Edeffa, Elbir, Nisibis, Gezir Merdin, Zibin, Ur of the Chaldees, Amad, and Carafara; but all now of little note excepting Diarbekir and Moufful.

DIARBEKIR, the capital of the above district, is situated in a delightful plain, on the banks and near the head of the Tigris, about 155 miles or 15 caravan days journey north-east from Aleppo, in latitude $37^{\circ} 35'$, east longitude $40^{\circ} 50'$. The bridge of 10 arches over the said river is said to have been built by the order of Alexander the Great. It is one of the richest and most mercantile cities in all Asiatic Turkey; and is well fortified, being encompassed with a double wall, the outermost of which is flanked, with 72 towers, said to have been raised in memory of our Saviour's 72 disciples. It has several stately piazzas or market-places, well stored with all kinds of rich merchandise, and 12 magnificent mosques, said to have been formerly Christian churches. Its chief manufacture is the dressing, tanning, and dying of goats skins, commonly called *Turkey leather*, of which the vent is almost incredible in many parts of Europe and Asia: besides this, there is another of dyed fine linen and cotton cloths, which are nearly in the same request. The waters of the Tigris are reckoned extraordinary for those two branches of trade, and give red leather a finer grain and colour than any other. There is a good number of large and convenient inns on both sides of the river, for the caravans that go to and from Persia; and on the road near the town is a chapel with a cupola, where Job is said to lie buried. This place is much frequented by pilgrims of all nations and religions, and a Turkish hermit has a cell close to it. The fair sex, who, in most other parts of the Turkish empire, are kept quite immured, and considered as mere slaves, enjoy here an extraordinary liberty, and are commonly seen on the public walks of the city in company with the Christian women, and live in great friendship and familiarity with them. The same is said of the men, who are polite, affable, and courteous, and very different from what they affect to be, especially the Turks, in other cities of this empire. The city is under the government of a basha, who has great power and very large dominions. He has commonly a body of 20,000 horse under him, for repelling the frequent incursions of the Curdes and Tartars, who always go on horseback to rob the caravans. The adjacent territory is very rich and beautiful; the bread, wine, and flesh are excellent; the fruits exquisite, and the pigeons better and larger than any in Europe.

Mr Ives, who passed through this city in 1758, informs us, that "about two years ago it was very populous, its inhabitants amounting to 400,000 souls; but in the last year 300,000 died either by cold or famine. The Christians residing in the city before this calamity were reckoned to amount to 26,000, of whom 20,000 died. This account we had from one of the French missionaries, a Capuchin, who also said, that before the famine the city contained 60,000 fighting men, but that now they are not able to muster 10,000. He assures us, that the houses and streets, nay the very mosques, were filled with dead; that every part of the city exhibited a dreadful image of death; and that the surviving inhabitants not only

gredily

Diarrhœa greedily devoured all kinds of beasts, brutes, and reptiles, but also were obliged to feed on human bodies. Yet, in the midst of this scene of horror, the grandees of the city had every thing in plenty; for they had taken care to monopolize vast quantities of corn, which they sold out to the other inhabitants at most extravagant prices, and thereby acquired for themselves immense fortunes. Corn rose from two piales a measure to 50, 60, and even 70, in the space of six months. The father added, that the very severe winter of 1756, and the locusts in 1757, were the causes of this dreadful visitation: for by reason of the former, there were but few acres of land sown with corn; and by the latter, the small crop they had was in a great measure destroyed. He spoke of the severity of that winter in terms almost incredible: that it was common to see the people fall down dead in the streets; that he himself once on quitting a warm room, and going into the open air, fell down motionless; and that his brother, in attempting to assist him, met with the same fate." This account of the effects of cold in the city of Diarbekir, which lies only in about 38° north, seems at first very surprising; but considering that the place stands on a rising ground in the midst of an extensive plain, and that the high Curdistan mountains lie to the south and east of it, and the Armenian or Turcomanian to the north, whose heads are always covered with snow, and even now in July supply the city with ice; it will not appear at all improbable, that in a very severe winter, such as that was in 1756, the inhabitants of this city should so severely feel the effects of it. Besides, fuel must have been extremely scarce, especially among the poorer sort, as nothing of this kind is produced but upon the mountains, and these lie at such a distance that the price of it must thereby be greatly enhanced.

DIARRHŒA, or **LOOSENESS**, in *Medicine*, is a frequent and copious evacuation of liquid excrement by stool. See *MEDICINE Index*.

DIARTHROSIS, in *Anatomy*, a kind of articulation or juncture of the bones; which being pretty lax affords room for a manifest motion. The word comes from *δια*, and *αρθρον*, *junction*, *assemblage*. It is opposed to *synarthrosis*, wherein the articulation is so close that there is no sensible motion at all. See *ANATOMY*, N° 2.

DIARY, a term sometimes used for a journal or day-book, containing an account of every day's proceedings. Thus we say, *diaries of the weather*, &c.

DIARY Fever, is a fever of one day. See *EPHEMERA*.

DIASCHISM, among musicians, denotes the difference between the comma and enharmonic diesis, commonly called the *lesser comma*.

DIASCORDIUM, in *Pharmacy*, a celebrated composition, so called from *scordium*, one of its ingredients. See *PHARMACY*.

DIASTOLE, among physicians, signifies the dilatation of the heart, auricles, and arteries; and stands opposed to the **SYSTOLE**, or contraction of the same parts. See *ANATOMY Index*.

DIASTOLE, in *Grammar*, a figure in prosody whereby a syllable naturally short is made long. Such is the first syllable of *Priamides* in the following verse of Virgil:

Atque hic Priamides! nihil ó tibi, amice, relictum.

DIASYRMUS, in *Rhetoric*, a kind of hyperbole, being an exaggeration of some low, ridiculous thing.

DIATESSARON, among ancient musicians, a concord or harmonical interval, composed of a greater tone, a less tone, and one greater semitone; its proportion in numbers is as 4:3.

DIATONICK, in *Music*, (compounded of two Greek words, viz. the preposition *δια*, signifying a transition from one thing to another, and the substantive *τονος*, importing a given degree of tension or musical note), is indifferently applied to a scale or gamut, to intervals of a certain kind, or to a species of music, whether in melody or harmony, composed of these intervals. Thus we say the *diatonick series*, a *diatonick interval*, *diatonick melody* or harmony. As the diatonick scale forms the system of diatonick music, and consists of diatonick intervals, it will be necessary, for understanding the former, that we should explain the latter. See *INTERVAL*.

DIATRAGACANTH, in *Pharmacy*, a name applied to certain powders, of which gum tragacanth is the chief ingredient.

DIBBLE, or **DIBBER**, a simple but useful instrument in gardening, used for planting out all sorts of young plants, &c.

DIBBLING WHEAT. See *AGRICULTURE Index*.

DIBIO, or **DIVIO**, in *Ancient Geography*, the *Divionense Castrum* and the *Divionum* of the lower age; a town of the Lingones, in Gallia Belgica: *Dibionenses* the people. Now *Dijon* the capital of Burgundy. E. Long. 5. 5. N. Lat. 47. 15.

DICE, among gamesters, certain cubical pieces of bone or ivory, marked with dots on each of their faces, from one to six, according to the number of faces.

Sharpers have several ways of falsifying dice. 1. By sticking a hog's bristle in them, so as to make them run high or low as they please. 2. By drilling and loading them with quicksilver; which cheat is found out by holding them gently by two diagonal corners: for if false, the heavy sides will turn always down. 3. By filing and rounding them. But all these ways fall far short of the art of the dice-makers; some of whom are so dexterous this way, that your sharpening gamester will give any money for them.

Dice formerly paid 5s. every pair imported, with an additional duty of 4s. 9 $\frac{4}{5}$ d. for every 20s. value upon oath; but are now prohibited to be imported.

DICÆARCHUS, a scholar of Aristotle, composed a great number of books which were much esteemed. Cicero and his friend Pomponius Atticus valued him highly. He wrote a book to prove, that men suffer more mischief from one another than from all evils beside. And the work he composed concerning the republic of Lacedæmon was extremely honoured, and read every year before the youth in the assembly of the ephori. Geography was one of his principal studies, on which science there is a fragment of a treatise of his still extant, and preserved among the *Veteris geographice scriptores minores*.

DICHONDRA, a genus of plants belonging to the pentandria class; and in the natural method ranking under the order *Campanaceæ*. See *BOTANY Index*.

DICHOTOMOUS,

Diarrhœa
||
Diastole.

Diasyrmus
||
Dichondra.

Dichotomous
||
Dictator.

DICHOTOMOUS, in *Botany*. See *BOTANY Index*.

DICHOTOMY, a term used by astronomers for that phasis or appearance of the moon, wherein she is bisected, or shows just half her disk. In this situation the moon is said to be in a quadrate aspect, or to be in her quadrature.

DICKER, in old writers, denotes the quantity of ten hides of skins whereof 20 made a last: also 10 pair of gloves, ten bars of iron, and the like, are sometimes expressed by the term *dicker*.

DICKINSON, EDMUND, a celebrated English physician and chemist, born in 1624. He studied and took his degrees at Merton college, Oxford; and in 1655 published there his *Delphi Phœnicizantes &c.* a most learned piece, in which he attempted to prove, that the Greeks borrowed the story of the Pythian Apollo, and all that rendered the oracle at Delphos famous, from the Holy Scriptures, and the book of Joshua in particular: a work that procured him great reputation both at home and abroad. He practised physic first at Oxford; but removing to London in 1684, his good fortune in recovering the earl of Arlington from a dangerous sickness, procured his promotion to be physician in ordinary to Charles II. and to his household. As that prince understood and loved chemistry, Dr Dickinson grew into great favour at court, and was continued in his appointments under James II. After the abdication of his unfortunate master, being then in years, and afflicted with the stone, he retired from practice, and died in 1707. He published many other things, particularly *Physica vetus et vera*, &c. containing a system of philosophy, chiefly framed on principles collected from the Mosaic history.

DICTAMNUS, WHITE DITTANY, or *Froxinella*: A genus of plants belonging to the decandria class; and in the natural method ranking under the 26th order, *Multiflorique*. See *BOTANY Index*.

DICTIONATOR, a magistrate at Rome invested with regal authority. This officer was first chosen during the Roman wars against the Latins. The consuls being unable to raise forces for the defence of the state, because the plebeians refused to enlist if they were not discharged of all the debts they had contracted with the patricians, the senate found it necessary to elect a new magistrate with absolute and uncontrollable power to take care of the state. The dictator remained in office for six months, after which he was again elected if the affairs of the state seemed to be desperate; but if tranquillity was re-established, he generally laid down his power before the time was expired. He knew no superior in the republic, and even the laws were subjected to him. He was called dictator, because *dictus*, named by the consul, or *quoniam dictis ejus parebat populus*, because the people implicitly obeyed his command. He was named by the consul in the night *viva voce*, and his election was confirmed by the augurs. As his power was absolute, he could proclaim war, levy forces, conduct them against an enemy, and disband them at his pleasure. He punished as he pleased, and from his decision there lay no appeal, at least till latter times. He was preceded by 24 lictors with the *fasces*; during his administration, all other officers, except the tribunes of the people, were suspended, and

he was the master of the republic. But amidst all this independence, he was not permitted to go beyond the borders of Italy; he was always obliged to march on foot in his expeditions; he never could ride in difficult and laborious marches without previously obtaining a formal leave from the people. He was chosen only when the state was in imminent danger from foreign enemies or inward seditions. In the time of a pestilence a dictator was sometimes elected, as also to hold the *comitia*, or to celebrate the public festivals, or drive a nail into the capitol, by which superstitious ceremony the Romans believed that a plague could be averted, or the progress of an enemy stopped. This office so respectable and illustrious in the first ages of the republic, became odious by the perpetual usurpations of Sylla and Julius Cæsar; and after the death of the latter, the Roman senate passed a decree which for ever after forbade a dictator to exist in Rome. The dictator, as soon as elected, chose a subordinate officer called his master of horse, *magister equitum*. This officer was respectable: but he was totally subservient to the will of the dictator, and could do nothing without his express order. This subordination, however, was some time after removed; and during the second Punic war the master of the horse was invested with a power equal to that of the dictator. A second dictator was also chosen for the election of magistrates at Rome after the battle of Cannæ. The dictatorship was originally confined to the patricians; but the plebeians were afterwards admitted to share it. Titus Lartius Flavius was the first dictator, in the year of Rome, 253.

DICTION, the phrase, elocution or style, of a writer or speaker. See *ORATORY*, N^o 99—122.

DICTIONARY, in its original acceptation, is the arranging all the words of a language according to the order of the alphabet, and annexing a definition or explanation to each word. When arts and sciences began to be improved and extended, the multiplicity of technical terms rendered it necessary to compile dictionaries, either of science in general, or of particular sciences, according to the views of the compiler.

DICTIONARY of the English Language. The design of every dictionary of language is to explain, in the most accurate manner, the meaning of every word; and to show the various ways in which it can be combined with others, in as far as this tends to alter its meaning. The dictionary which does this in the most accurate manner is the most complete. Therefore the principal study of a lexicographer ought to be, to discover a method which will be best adapted for that purpose. Dr Johnson, with great labour, has collected the various meanings of every word, and quoted the authorities: but, would it not have been an improvement if he had given an accurate definition of the precise meaning of every word; pointed out the way in which it ought to be employed with the greatest propriety; showed the various deviations from that original meaning, which custom had so far established as to render allowable; and fixed the precise limits beyond which it could not be employed without becoming a vicious expression? With this view, it would have been necessary to exhibit the nice distinctions that take place between words which are nearly synonymous. Without this, many words can

Diction,
Dictionary.

Dictionary. only be defined in such a manner, as that they must be considered as exactly synonymous. We omit giving any quotations from Johnson, to point out these defects; and shall content ourselves with giving a few examples, to show how, according to our idea, a dictionary of the English language ought to be compiled.

IMMEDIATELY. *adv. of time.*

1. Instantly, without delay. Always employed to denote future time, and never past. Thus, we may say, *I will come immediately*; but not, *I am immediately come from such a place*. See **PRESENTLY**.

2. Without the intervention of any cause or event; as opposed to *mediately*.

PRESENTLY. *adv. of time.*

1. Instantly, without delay. Exactly synonymous with *immediately*; being never with propriety employed to denote any thing but future time.

2. Formerly it was employed to express present time. Thus, *The house presently possessed by such a one*, was often used: but this is now become a vicious expression; and we ought to say, *The house possessed at present*. It differs from *immediately* in this, that even in the most corrupt phrases it never can denote past time.

FORM. *subst.* The external appearance of any object, when considered only with respect to shape or figure. This term therefore, in the literal sense, can only be applied to the objects of the sight and touch; and is nearly synonymous with *figure*: but they differ in some respects. *Form* may be employed to denote more rude and unfinished shapes; *figure*, those which are more perfect and regular. *Form* can never be employed without denoting matter; whereas *figure* may be employed in the abstract: thus, we say a square or a triangular *figure*; but not a square or triangular *form*. And in the same manner we say, the *figure* of a house; but we must denote the substance which forms that figure, if we use the word *form*; as, *a cloud of the form of a house*, &c. See **FIGURE**.

2. In contrast to irregularity or confusion. As beauty cannot exist without order, it is by a figure of speech employed to denote beauty, order, &c.

3. As *form* respects only the external appearance of bodies, without regard to their internal qualities, it is, by a figure of speech, employed in contrast to these qualities, to denote empty show, without essential qualities. In this sense it is often taken when applied to religious ceremonies, &c.

4. As *form* is employed to denote the external appearance of bodies; so, in a figurative sense, it is applied to reasoning, denoting the particular mode or manner in which this is conducted; as, *the form of a syllogism*, &c.

5. In the same manner it is employed to denote the particular mode of procedure established in courts of law; as, *the forms of law, religion*, &c.

6. *Form* is sometimes, although improperly, used to denote the different circumstances of the same body; as, *water in a fluid or a solid form*. But as this phrase regards the internal qualities rather

than the external figure, it is improper; and ought to be, *water in a fluid or a solid state*. Dictionary.

7. But when bodies of different kinds are compared with one another, this term may be employed to denote other circumstances than shape or figure: for we may say, *a juice exuding from a tree in the form of wax or resin*; although, in this case, the consistence, colour, &c. and not the external arrangement of parts, constitutes the resemblance.

8. From the regular appearance of a number of persons arranged in one long seat, such persons so arranged are sometimes called a *form*; as, *a form of students*, &c. And,

9. By an easy transition, the seat itself has also acquired that name.

GREAT. *adj.* A relative word, denoting largeness of quantity, number, &c. serving to augment the value of those terms with which it is combined, and opposed to *small* or *little*. The principal circumstances in which this word can be employed are the following:

1. When merely *inanimate* objects are considered with regard to quantity, *great* is with propriety employed, to denote that the quantity is considerable; as, *a great mountain, great house*, &c. and it is here contrasted with *small*. When *great* is thus employed, we have no other word that is exactly synonymous.

2. When *inanimate* objects are considered with regard to their extent, this term is sometimes employed, although with less propriety; as, *a great plain, a great field*, &c. And in this sense it is nearly synonymous with *large*; and they were often used indiscriminately, but with some difference of meaning: for, as *large* is a term chiefly employed to denote extent of superficies, and as *great* more particularly regards the quantity of matter; therefore, when *large* is applied to any object which is not merely superficial, it denotes that it is the extent of surface that is there meant to be considered, without regard to the other dimensions: whereas when the term *great* is employed, it has reference to the whole contents. If, therefore, we say, *a large house, or a large river*, we express that the house, the river, have a surface of great extent, without having any necessary connexion with the size in other respects. But if we say, *a great house, or a great river*, it at once denotes that they have not only a large surface, but are also of great size in every respect.

3. *Great*, when applied to the human species, never denotes the size or largeness of body, but is applied solely to the qualities of the mind. Thus, when we say that *Socrates was a great man*, we do not mean that he was a man of great size, but that he was a man who excelled in the endowments of the mind. The terms which denote largeness of size in the human body, are *big, bulky, huge*, &c.

4. *Great* is sometimes applied to the human species, as denoting high rank. In this case it is oftener used in the plural number than otherwise. Thus, we say simply *the great*, meaning the whole body

Dictionary.

of men in high station, as opposed to *mean*. It should seldom be employed in this sense, as it tends to confound dignity of rank with elevation of mind.

5. As this is a general term of augmentation, it may be joined with all nouns which denote *quantity, quality, number, excellence, or defects*; or such as imply *praise, blame, anger, contempt*, or any other affection of the mind.
6. It is employed to denote every step of ascending or descending consanguinity; as *great-grandfather, great-grandson, &c.*

HIGH. *adj.* Exalted in a perpendicular direction at a distance from the surface of the earth. Opposed to *low*.

1. *High* is a term altogether indefinite, and is employed to express the degree of elevation of any inanimate body. Thus, we say *a high mountain, a high house, steeple, tower, pillar, &c.* Nor is there any other word that can here be considered as synonymous; *lofty* being employed only to denote a very eminent degree of elevation.
2. To express the perpendicular elevation of vegetables either *high* or *tall* may be employed, as being in this case nearly synonymous. We may therefore say, *a high or tall tree, a high or tall mast, &c.* but with this difference between these two expressions, that *tall* can be more properly applied to those that are much elevated and of small dimensions; and *high*, to such as are more bulky, and of greater size.
3. The perpendicular height of man can never be expressed by the word *high*; *tall* being here the proper expression. And although *high* is sometimes used to express the height of other animals, yet it seems to be an improper expression. See **TALL**.
4. *High*, when applied to the human species, always refers to the mind; and denotes *haughtiness, stateliness, pride, &c.* and, when combined with the expressions of any energy of the mind, it denotes that in a higher degree. In this sense, it is opposed to *meanness, abjectness, and humility*.
5. As this is an indefinite term, tending to denote any thing that is elevated above us, it may be combined with almost every noun which admits of this elevation. And as objects high above us are always out of our reach, it is in a metaphorical sense used to denote any thing that seems to be above the ordinary condition of mankind; or those qualities or endowments of mind that are not easily acquired: as, *dignity or elevation of sentiment; dignity of rank; acuteness in reasoning on difficult subjects; pride, haughtiness, or any other quality which seems beyond the ordinary level of mankind; dearness of price, &c.*
6. In the same manner we apply this term to time; which having a metaphorical resemblance to a river flowing on with an unceasing current through all successive ages, any thing of remote antiquity is denoted by the term *high*.
7. Likewise those degrees of latitudes far removed from the line, where the pole becomes more elevated.
8. And to some particular crimes, as being at-

tended with peculiar degrees of guilt; as, *high* Dictionary.
treason.

TALL. *adj.* Something elevated to a considerable degree in a perpendicular direction. Opposed to *low*.

1. This term is chiefly employed to express the height of man and other animals; and is applied to denote the height of the body only, without having any reference to the mind. When applied to man, no other word can be substituted in its stead: when applied to other animals, *high* is sometimes considered as nearly synonymous. See **HIGH**.

2. It is likewise employed to denote the perpendicular height of vegetables; and in this case, it is nearly synonymous with *high*. See **HIGH**.
3. It can in no case be employed to express the height of merely inanimate objects; as we can never say *a tall steeple, tower, or pillar*, but *a high steeple, &c.* For the distinctions in these cases, see **HIGH**.

LONG. *adj.* A relative term, denoting the distance between the extremes of any body, which is extended more in one of its geometrical dimensions than another. Opposed to *short*.

1. This term may be applied to all inanimate objects, of whatever kind, whose dimensions in one way exceed the other, and when not in an erect posture, whatever be the other circumstances attending them; whether it relates to superficies alone, or to solid bodies; whether these be bounded or open, straight or crooked, flexible or rigid, or in any other circumstances whatever: thus we say, *a long or short line, a long or short ridge, street, ditch, rope, chain, staff, &c.* But it is to be observed, that although *long* is in the strict sense only opposed to *short*; yet as it expresses the extension of matter in one of its geometrical proportions, it is often contrasted by those words which express the other proportions when we mean only to describe the several proportions: as, *a table long and broad*. And as these several dimensions are expressed by different words, according to the various forms, modifications, and circumstances, in which bodies are found, therefore it is in this sense contrasted by a great diversity of terms: as, *a long and broad or wide, narrow or strait, street or lane; a long and thick, or small rope, chain, staff*. For the distinctions in these cases, see **BROAD, WIDE, &c.**
2. Objects necessarily fixed in an erect position can never have this term applied to them; and therefore we cannot say *a long*, but *a high, tower or steeple*. And for the same reason, while trees are growing and fixed in an erect position, we cannot apply this term to them; but when they are felled and laid upon the ground, it is quite proper and necessary. Thus, we do not say *a long*, but *a tall or high tree*, while it is growing; but we say *a long*, not *a tall log of wood*: and in the same manner we say *a tall mast*, when it is fixed in the ship; but *a long mast*, while it lies upon the beach. See **TALL** and **HIGH**.
3. Those vegetables which are of a tender pliant nature,

ture, or so weak as not to be able to retain a fixt position, being considered as of a middle nature between erect and prostrate bodies, admit of either of the terms *long*, *tall*, or *high*; as, *a long or tall rush* or *willow wand*, or *a long, tall, or high stalk of corn*. See HIGH and TALL.

4. The parts of vegetables, when considered as distinct from the whole, even when growing and erect, assume the term *long*: for we do not say *a tall*, but *a long, shoot of a tree*; and *a tree with a long stem*, in preference to *a tree with a high stem*.
5. For the same reason, a staff, and pole, even when fixed in a perpendicular direction, assume the word *long*, in preference to *tall* or *high*.
6. With regard to animals, the general rule is applied, without any exceptions: *tall*, and not *long*, being employed to denote the height of the human body, when in an erect posture; and *long*, and not *tall*, to denote its length when in an incumbent situation. *Long*, applied to all other animals which do not walk erect, always denotes their greatest length in a horizontal position from head to tail.
7. In a figurative sense, it denotes, with regard to time, any thing at a great distance from us.
8. As also, any thing that takes up much time before it is finished; as, *a long discourse*, *a protracted note in music*, &c.

BROAD. *adj.* The distance between the two nearest sides of any body, whose geometrical dimensions are larger in one direction than in another; and has a reference to superficies only, and never to the solid contents. Opposed to *narrow*.

1. *Broad*, in the strictest acceptation, is applied to denote those bodies only whose sides are altogether open and unconfined; as, *a broad table*, *a broad wheel*, &c. and in these cases it is invariably contrasted by the word *narrow*; nor is there any other word which in these cases can be considered as synonymous with it, or used in its stead.
2. When any object is in some sort bounded on the sides, although not quite closed up, as a road, street, ditch, &c. either *broad* or *wide* may be employed, but with some difference of signification; *broad* being most properly used for those that are more open, and *wide* for those which are more confined: nor can this term be ever applied to such objects as are close bounded all around, as a house, a church, &c. *wide* being here employed. For the more accurate distinctions in these cases, see the article WIDE.

WIDE. *adj.* A term employed to denote relative extent in certain circumstances. Opposed to *narrow* and *strait*.

1. This term is in its proper sense applied only to denote the space contained within any body closed all round on every side; as a *hottise*, *gate*, &c.: and differs from *broad* in this, that it never relates to the superficies of solid objects, but is employed to express the capaciousness of any body which containeth vacant space; nor can capaciousness in this sense be expressed by any other word but *wide*.

VOL. VII. Part I.

2. As many bodies may be considered either with respect to the capaciousness or superficial extent; in all these cases, either the term *broad* or *wide* may be used; as, *a broad or wide street* or *ditch*, &c. but with a greater or less degree of propriety, according to the circumstances of the object, or the idea we wish to convey. In a street where the houses are low and the boundaries open, or in a ditch of small depth and large superficies, as this largeness of superficies bears the principal proportion, *broad* would be more proper; but if the houses are of great height, or the ditch of great depth, and capaciousness is the principal property that affects the mind, we would naturally say *a wide street* or *ditch*; and the same may be said of all similar cases. But there are some cases in which both these terms are applied, with a greater difference of meaning; thus we say *a broad* or *a wide gate*: But as the gate is employed to denote either the aperture in the wall, or the matter which closes that aperture, these terms are each of them used to denote that particular quality to which they are generally applied: and as the opening itself can never be considered as a superficies, the term *wide*, in this case, denotes the distance between the sides of the aperture; while, on the contrary, *broad* denotes the extent of matter fitted to close that aperture; nor can these two terms in any case be substituted for one another.

3. As a figurative expression, it is used as a cant phrase for a mistake: as, *you are wide of the mark*; that is, not near the truth.

NARROW. *adj.* A relative term, denoting a proportional smallness of distance between the sides of the superficies of plain bodies. Opposed to *broad*.

1. As this is only applied to superficies, it is exactly contrasted by *broad*, and is applied in all cases where the term *broad* can be used, (see BROAD); and in no other case but as a contrast to it, except the following.
2. It sometimes is employed to describe the smallness of space circumscribed between certain boundaries, as opposed to *wide*, and nearly synonymous with *strait*; as we say *a wide* or *a narrow house*, *church*, &c. For the necessary distinctions here, see the article STRAIT.
3. In a figurative sense it denotes *parsimony*, *poverty*, *confined sentiments*, &c.

STRAIT. *adj.* A relative term, denoting the extent of space in certain circumstances. Opposed to *wide*; see WIDE.

1. This term is employed, in its proper sense, to denote only space, as contained between surrounding bodies in such circumstances as to denote some degree of confinement; and is exactly opposed to *wide*; as, *a wide* or *a strait gate*, &c. See WIDE.
2. So necessary is it that the idea of confinement should be connected with this word, that in all those cases where the space contained is large, as in a church, or house, we cannot express a smaller proportional width by this term. And as we have no other word to express space in these circumstances,

cumstances, we have been obliged to force the word *narrow* from its natural signification, and make it express this. See *NARROW*.

3. In some particular cases, *narrow* or *strait* may be applied to the same object: as, a *narrow* or a *strait line*: but here *strait* is never employed but where an idea of confinement is suggested, and where it is exactly contrasted to *wide*; nor can *narrow* be employed but in such circumstances where *broad* would be a perfect contrast to it. Therefore these two terms may be always used in the same circumstances as those which contrast them may be. For an account of which see *WIDE*.

4. The term *strait* is likewise in a peculiar manner used to denote the smallness of the internal diameter of those small bodies which are fitted to receive or contain others, as any kind of bag, tube, body clothes, mortoise, and others of the same kind; and in all these cases this term may be employed to denote the smallness of their lesser diameter, and never the term *narrow*. But in certain circumstances the word *tight* may be substituted for it. See *TIGHT*.

5. *Strait*, in a figurative sense denotes any sort of confinement of sentiment or disposition.

TIGHT. *adj.* A term employed in certain circumstances to denote the internal capacity of particular bodies. Nearly synonymous with *strait*.

This term is confined entirely to denote the smallness of the internal dimensions of such objects, as are formed to cover or to receive or contain other solid bodies, and can be employed in no other case. And although it agrees with *strait*, in always denoting confinement, and by being applicable to the same species of objects, yet it differs in the following respects: 1. If there be any difference of the diameter of the objects to which the term *strait* can be applied, it always has reference to the smaller; yet *tight* may be applied to any sort of confinement, whether it regards the length or breadth. 2. *Strait* can be applied to all bodies of capacity when of small diameter, without any sort of reference to the nature of the substance which it may be capable of containing. For we can say a *strait bag*, a *strait sleeve*, a *strait mortoise*, a *strait gate*, &c. whereas *tight* can only be applied to any body when it is considered as having reference to another body which is intended to be contained in it, and is pinched for want of room. Thus we say, *the sleeve of a coat is too tight for the arm*, *the mortoise is too tight for the tenon*, &c.: but we cannot say, *the bag or the gate is too tight*, because these are fitted to receive any sort of objects. And hence it happens that in many cases the dimensions of the same body may be expressed by *tight* or *strait* when considered in different circumstances. Thus we may say, *this sleeve is too strait*, when we look at a coat when lying on the table, and consider its proportions; but it is not till we have tried it upon the arm that it is intended to cover, that we call it *tight*. And we may say, *a gate is too strait or too tight*: but in the first case we consider it as being too confined for admitting objects to pass

through it; and in the last, as being too confined with respect to the leaves that are to shut the aperture, not allowing them space to move with freedom.

These examples may serve to give some idea of the plan of an English Dictionary composed upon philosophical principles: But, besides the circumstances above enumerated, there are many others which would require particular attention in the execution of a work of this kind. In the English language, a great variety of terms occur, which denote matter under certain general forms or circumstances, without regarding the minute diversities that may take place; as the word *cloth*, which denotes matter as manufactured into a particular form, including under it all the variety of stuffs manufactured in that particular way, of whatever materials, colour, texture or fineness, they may be. The same may be said of *wood*, *iron*, *yarn*, and a great variety of terms of the same nature, some of which cannot assume any plural; while others admit of it in all cases, and others admit or refuse it according to the different circumstances in which they are considered.

In a dictionary, therefore, all this variety of cases ought to be clearly and distinctly pointed out under each particular article: this is the more necessary, as some of these words have others formed from them which might be readily mistaken for their plurals, although they have a very different signification; as *clothes*, which does not denote any number of pieces of different kinds of *cloth*, but *wearing apparel*. The following example will illustrate this head.

WOOD. *subst.* A solid substance of which the trunks and branches of trees consist.

1. This term is employed to denote the solid parts of vegetables of all kinds, in whatever form or circumstances they are found. Nor does this term admit of plural with propriety, unless in the circumstances after mentioned: for we say, *many different kinds of wood*, in preference to *many kinds of woods*; or we say, *oak, ash, or elm wood*, not *woods*.
2. But where we want to contrast *wood* of one quality or country with that of another, it admits of a plural: for we say, *white woods are in general softer than red*; or *West Indian woods are in general of greater specific gravity than the European woods*: But unless where the colour, or some quality which distinguishes it from growing wood, is mentioned, this plural ought as much as possible to be avoided, as it always suggests an idea of growing wood.
3. *Wood* likewise denotes a number of trees growing near one another; being nearly synonymous with *forest*: See *FOREST*. In this sense it always admits of a plural; as, *Ye woods and wilds whose solitary gloom*, &c.

A dictionary cannot be reckoned complete without explaining obsolete words; and if the terms of the several provincial dialects were likewise given, it would be of great utility: nor would this take much time; because a number of these words needs no other explanation than to mark along with them the words which had come in their place, when there happened to be one perfectly synonymous: and in those cases where the

Dictionary. the same idea could not be expressed in modern language without a periphrasis, it would be of use to explain them distinctly; so that, when a writer found himself at a loss for a term, and obliged to search for one beyond the bounds of our own language, he might take one of these, when he found that it was expressive and energetic, in preference to another drawn from a foreign language. This would at least have one good effect: it would make our language more fixed and stable; not to say more accurate and precise, than by borrowing from foreign languages. The following examples may serve to give some idea of the manner of treating this part of the work.

MOE, or *mo. adj.* An obsolete term still employed in the Scotch dialect, and by them pronounced *mae*; denoting a greater number, and nearly synonymous with *more*: but it differs in this respect, that in the Scotch dialect, *mae* and *mair* (English *more*), are each employed in their distinct sphere, without encroaching upon one another; *mae* being employed to denote number, but never quantity or quality; and *mair*, to denote quantity and quality, but never number: thus they say *mae*, not *mair*, *apples*, *men*, &c. and they say *mair*, not *mae*, *cloth*, *earth*, *courage*, &c. See **MAIR**. Both of these terms are supplied by the word *more*; which in the English language is applied indiscriminately to denote quantity, quality, and number. See **MORE**.

THIR. *pron.* Obsolete; still employed in the Scotch dialect: the plural of *this*; and contracted to *these*, in the same manner as *that* is to *this*.

As there is no word in the English language equivalent to this, we thus show the manner in which it is employed. In the English language we say, *that stone* or *house*, pointing at one at a distance, *is larger* or *more commodious than this stone* or *this house*, which is supposed to be at hand. In the same manner, in the Scotch dialect, they say, *these* (or, as it is pronounced, *thae*) *stones are whiter than thir stones*; denoting, that the former are at a distance, and the latter at hand. And, in the same manner, it is invariably applied to denote any present object in the plural manner, as opposed to *these*: as *these* or *thir apples*, as at hand, or at a distance; *these*, or *thir trees*, &c.; but never in the singular number, as it is always *this* or *that tree*, *house*, &c.

As the English language is so exceedingly irregular in the pronunciation, the same letter in the same situation often assuming sounds totally different in different words, it is impossible to establish any general rules, on this subject, which do not admit of many exceptions: therefore, a dictionary is the best means of ascertaining and pointing out the proper pronunciations of words. For, if the writer first pointed out all the different sounds that the same letter could ever be made to express, and assigned to every particular sound which each letter could be made to assume, a particular mark, which was appropriated to denote that particular sound of the letter whenever it occurred; by placing these particular marks above the letters in the dictionary, the sound of each letter would be pointed out in all cases with the utmost certainty. It would be impos-

sible for us to illustrate this by examples, without first ascertaining all the sounds of each letter; which would lead us into a discussion too long for this place.

We shall only further observe, That, besides having the accented syllable of every word properly distinguished in a dictionary to assist in the pronunciation, the English language requires another essential improvement, viz. the use of accents to distinguish the meaning of *words* and *phrases*: which, although, it is not so properly confined to a lexicographer, yet it is not quite without his sphere. Thus the word *as* admits of two very different sounds, as well as different significations; as in this example, "Cicero was nearly *as* eloquent *as* Demosthenes:" in which the first *as* is pronounced *afs*, and the last is pronounced *az*. Now, it often happens, that, in reading, the particular way in which it ought to be understood is not pointed out by the context, till after the word itself is pronounced, which has an equal chance at least of being pronounced wrong; whereas, if it were always accented when employed in the one sense, and not in the other, it would free the reader from this perplexity. There are other cases in which the use of proper accents in writing would be of great consequence; as at the beginning of a sentence, when it was put as a question, or used ironically, &c. the want of which every one must have observed. But as this does not so properly belong to the lexicographer as the grammarian, we shall here take no further notice of it.

The above examples, we hope, will be sufficient to give the reader some idea of the plan that we would propose; and enable him to determine, whether or not a dictionary, executed upon this plan, would convey to his mind a more perfect knowledge of the English language, than those dictionaries that have been hitherto published. These examples were given rather with a view to show the manner in which a work of this kind might be conducted, than as perfect and unexceptionable explanations of the several articles there enumerated; and therefore we did not think it necessary to produce any authorities, although we are sensible that they would be requisite in such a work.

DICTYMNIA, or **DICTYNNIA**, in *Mythology*, were feasts celebrated at Lacedæmon and in Crete, in honour of Diana Dictymnia or Dictynnia, or of a nymph taken for her, who, having plunged herself into the sea, to escape the passion of Minos, was caught in a fisherman's net or *διτυρον*, whence the name.

DICTYS CRETENSIS, a very ancient historian, who serving under Idomeneus king of Crete in the Trojan war, wrote the history of that expedition in nine books; and Tzetzes tells us, that Homer formed his Iliad upon the plan of that history. It is however maintained, that the Latin history of Dictys which we have at present is spurious.

DIDACTIC, in the schools, signifies the manner of speaking or writing, adapted to teach or explain the nature of things. The word is formed from the Greek *διδασκω*, *doceo*, "I teach."

There are many words which are only used in the didactic and dogmatic way: and there are many works, ancient and modern, both in prose and verse, written

Didapper
||
Diderot.

after this method: such are the Georgics of Virgil, Lucretius's poem *De Rerum Natura*, and Pope's *Essays on Criticism* and on *Man*, &c. &c.

DIDAPPER. See COLYMBUS, ORNITHOLOGY *Index*.

DIDELPHIS, or OPOSSUM, a genus of quadrupeds belonging to the order of feræ. See MAMMALIA *Index*.

DIDEROT, DENYS, an eminent French writer, was the son of a cutler, and born at Langres in the year 1713. He received his education among the Jesuits, and being destined for the church by one of his uncles who had a canonry to bestow upon him, he had received the tonsure. But he discovered so little inclination for the ecclesiastical profession, that his father sent him to Paris to prosecute his studies, and afterwards placed him with an attorney. It soon appeared, however, that he was more attached to different departments of literature and science, than disposed to submit to the drudgeries of the profession to which his father had destined him; and having thus neglected his business, his allowance was withheld, which obliged him to make provision for himself. The studies to which Diderot devoted his attention were extremely various. Physics, geometry, metaphysics, moral philosophy, and belles lettres, were at different times the objects of his pursuit. He even indulged in poetry and works of invention; but attached himself chiefly to more serious studies. He possessed a ready flow and great animation of language in conversation; and these qualities, with a decisive tone and manner, procured for him partisans and protectors.

One of the first of his publications was a translation of "Stanyan's History of Greece." In the year 1745 he published "*Principles of Moral Philosophy*," 12mo, a work by which he obtained some reputation. But the year following, when he published a piece entitled *Pensées Philosophiques*, he acquired considerable celebrity. This work was highly commended by the partisans of the new philosophy, among whom he had now enlisted himself, and became one of its most zealous disciples. The same work was afterwards reprinted under the title of *Étrennes aux Esprits Forts*. It was greatly read, and it is supposed contributed much to the diffusion of those free opinions which had now become so prevalent in France. Soon after this period, in conjunction with his friend D'Alembert, the plan of the vast undertaking, the *Dictionnaire Encyclopédique*, was laid. The professed object of this work was to become a magazine for every branch of human knowledge; but at the same time, it has been alleged that it was also intended by the authors and editors as the great engine by means of which the established opinions, whether of a religious or political nature, which they supposed had their origin in fraud and superstition, should be subverted. The province of this work which was entrusted to Diderot was the description of Arts and Trades, (*Arts et Métiers*). But, besides, he contributed many other articles in various departments of science. His writings in the Dictionary have been considered as extremely verbose and diffuse; and in all of them he is too fond of metaphysical subtleties and the pompous parade of scientific language. The first edition of the Dictionary was completed between the years 1751 and 1767; and although Diderot was occupied in this laborious undertaking for a period of nearly 20 years,

the recompense which he obtained is said to have been extremely small. Diderot.

During this time he composed various other works. Among these he published "A letter on the Blind, for the use of those who see." This work made a good deal of noise, and in consequence of some of the sentiments which it contained had given offence to the government, for which the author was kept in confinement for six months at Vincennes. This piece was soon followed by another, entitled "A letter on the Deaf and Dumb, for the use of those who hear and speak," 2 vols. 12mo, 1751. "The Sixth Sense," published in 1752; "Thoughts on the interpretation of Nature," 1754; "The Code of Nature," 1755, are similar works, and may be ranked in the same class. His moral character was considerably affected by the publication of *Bijoux Indiscrets*, 2 vols 12mo; which is a collection of licentious tales; for this indeed he made some kind of compensation, when he published two prose comedies, *Le Fils Naturel*, 1757; and *Le Père de Famille*, 1758; which are not only interesting as dramatic pieces, but exhibit a pure and correct morality. The latter is considered as one of the best comedies of the sentimental kind which has appeared on the French stage. It has indeed received universal admiration. He published afterwards a pamphlet, "On Public Education," which contains undoubtedly some useful hints; but at the same time it proposes many things which are impracticable. To the list of his works now mentioned we may add, "An Eulogy on Richardson," which is full of warmth and enthusiasm; and "An Essay on the Life and Writings of Seneca the Philosopher." This was his last work, and was published in 1779. Among some observations on this work by the Monthly Reviewers, the author of it is thus characterized: "The works of M. Diderot, says the writer, have long since disgusted the modest votaries of true philosophy, by the tone of arrogance and self-sufficiency, and the froth and fumes of a declamatory eloquence, that form their essential and distinctive character." "It contains, it is farther added, like the other writings of that author, a glaring mixture of good and bad; of brilliant thoughts and obscure reasonings; of sentences that dart from the imagination with the energy of lightning, and cloudy periods of metaphysical rhetoric, that convey either no ideas, or false ones."

The character of Diderot suffered considerably from some defamatory attacks which he made on his former friend Rousseau, who had quarrelled with the French philosophers and had separated himself from their school. From the "Confessions" of the Genevan philosopher, it would appear that they expected some anecdotes which would not have been much to their honour. In one of his letters Rousseau thus speaks of Diderot. His words are remarkable, as they are equally applicable to his own character. "Although born with a good heart and an open disposition, he had an unfortunate propensity to misinterpret the words and actions of his friends; and the most ingenuous explanations only supplied his subtle imagination with new interpretations against them." Diderot was married and had a family; and although he possessed some irritability of temper, he was a kind husband and a tender parent. At the conclusion of the Dictionary, the state of his affairs rendered

Diderot,
Dido.

dered it necessary for him to dispose of his library. It was purchased by the empress of Russia, who, with the king of Prussia, was at that time the great encourager and promoter of literature and literary men. These sovereigns were also considered as disciples of the French school. The price which Diderot received for his library was 50,000 livres; and he was to have the use of it during his life. Some of his biographers, with what truth we pretend not to say, have not hesitated to charge him with disposing of it a second time; and when some person commissioned by the empress wished to see it, the philosopher declined the visit by excuses till he had time to fill it with books borrowed from booksellers. The examination, it is obvious, must have been extremely superficial, otherwise the truth would have been at once detected. Diderot had been admitted a member of the Academy of Sciences at Berlin. He died suddenly, as he rose from table, on July 31st, 1784. His literary and philosophical works have been collected and published in 6 vols, 8vo.

DIDO, called also ELISA, a daughter of Belus king of Tyre, who married Sichæus or Sicharbas her uncle, who was priest of Hercules. Pygmalion, who succeeded to the throne of Tyre after Belus, murdered Sichæus to get possession of the immense riches which he had; and Dido, disconsolate for the loss of her husband, whom she tenderly loved, and by whom she was equally esteemed, set sail in quest of a settlement with a number of Tyrians, to whom the cruelty of the tyrant became odious. According to some accounts, she threw into the sea the riches of her husband which Pygmalion so greedily desired, and by that artifice compelled the ships to fly with her that had come by order of the tyrant to obtain the riches of Sichæus. During her voyage, Dido visited the coast of Cyprus; where she carried away 50 women who prostituted themselves on the sea-shore, and gave them as wives to her Tyrian followers. A storm drove her fleet on the African coast, and she bought of the inhabitants as much land as could be covered by a bull's hide cut into thongs. Upon this piece of land she built a citadel called *Byrsa*; and the increase of population, and the rising commerce among her subjects, soon obliged her to enlarge her city and the boundaries of her dominions. Her beauty as well as the fame of her enterprise, gained her many admirers; and her subjects wished to compel her to marry Iarbas king of Mauritania, who threatened them with a dreadful war. Dido begged three months to give her decisive answer: and during that time she erected a funeral pile, as if wishing by a solemn sacrifice to appease the manes of Sichæus, to whom she had promised eternal fidelity. When all was prepared, she stabbed herself on the pile in presence of her people; and by this uncommon action obtained the name of *Dido*, "valiant woman," instead of Elisa. According to Virgil and Ovid, the death of Dido was caused by the sudden departure of Æneas; of whom she was deeply enamoured, and whom she could not obtain as a husband. This poetical fiction represents Æneas as living in the age of Dido, and introduces an anachronism of near 300 years. Dido left Phœnicia 247 years after the Trojan war or the age of Æneas, that is, about 953 years before Christ. This chronological error proceeds not from the igno-

rance of the poets, but it is supported by the authority of Horace.

Aut famam sequere, aut sibi convenientia fingi.

While Virgil describes, in a beautiful episode, the desperate love of Dido, and the submission of Æneas to the will of the gods, he at the same time gives an explanation of the hatred which existed between the republics of Rome and Carthage; and informs his reader, that their mutual enmity originated in their very first foundation, and was apparently kindled by a more remote cause than the jealousy and rivalry of two flourishing empires. Dido after her death was honoured as a deity by her subjects.

DIDŪS, or DODO, a genus of birds belonging to the order of gallinæ. See ORNITHOLOGY *Index*.

DIDYMUS of Alexandria, an ecclesiastical writer of the fourth century; who, though he is said to have lost his eyes at five years of age, when he had scarcely learned to read, yet applied so earnestly to study, that he attained all the philosophic arts in a high degree, and was thought worthy to fill the chair in the famous divinity school at Alexandria. He was the author of a great number of works: but all we have now remaining are, a Latin translation of his book upon the Holy Spirit, in the works of St Jerome, who was the translator; short strictures on the Canonical Epistles; and a book against the Manichees.

DIDYNAMIA, (from *dis*, twice, and *δυναμις*, power), the name of the 14th class in Linnæus's sexual method, consisting of plants with hermaphrodite flowers, which have four stamina or male organs, two of which are long and two short. See BOTANY *Index*.

DIEMEN'S LAND, formerly supposed to be the southern coast or point of New Holland, but now found to be an island, as it is separated from New Holland by Bass's strait, which was discovered by Mr Bass and Lieutenant Flinders in the end of the year 1798. The northern coast is in S. Lat. 40° 55", and between 146° 45' and 148° 15' E. Long. This coast was discovered in November 1642, by Tafman, who gave it the name of *Van Diemen's Land*. Captain Furneaux touched at it in March 1773, and the country has since been further explored by other navigators. Here is a very safe road, named by Captain Cook *Adventure Bay*. Two other harbours or bays were discovered or explored by Messrs Bass and Flinders, viz. Port Dalrymple and Frederick Henry bay, and two considerable rivers, which have been called *Port Dalrymple* and *Derwent rivers*. The parts adjoining to Adventure bay are mostly hilly, and form an entire forest of tall trees, rendered almost impassable by brakes of fern, shrubs, &c. The soil on the flat land, and on the lower part of the hills, is sandy, or consists of a yellowish earth, and in some parts of a reddish clay; but further up the hills it is of a gray rough cast. The forest trees are all of one kind, generally quite straight, and bearing clusters of small white flowers. The principal plants observed were wood-forrel, milk-wort, cudweed, bell-flower, gladiolus, samphire, and several kinds of fern. The only quadruped seen distinctly was a species of opossum, about twice the size of a large rat. The kangaroo, found farther northward in New Holland, may also be supposed to inhabit here, as some of the inhabitants had

Didus
||
Diemen's
land.

Diemen's
land,
Diemer-
broek.

had pieces of the skin of that animal. The principal forts of birds in the woods are brown hawks or eagles, crows, large pigeons, yellowish paroquets, and a species which was called *motacilla cyanea*, from the beautiful azure colour of its head and neck. On the shore were several gulls, black oyster-catchers or sea-pies, and plovers of a stone colour. In the woods were seen some blackish snakes of a pretty large size; and a species of lizard fifteen inches long and six round, beautifully clouded with yellow and black. Among a variety of fish caught, were some large rays, nurfes, leather-jackets, bream, soles, flounders, gurnards, and elephant fish. Upon the rocks are muscles and other shell-fish, and upon the beach were found some pretty Medusa's heads. The most troublesome insects met with were the moschettoes; and a large black ant, the bite of which inflicts extreme pain.

The inhabitants seemed mild and cheerful, with little of that wild appearance which savages in general have. They are almost totally devoid of personal activity or genius, and are nearly upon a par with the wretched natives of Terra del Fuego. They display, however, some contrivance in their method of cutting their arms and bodies in lines of different directions, raised above the surface of the skin. Their indifference for presents offered them, their general inattention and want of curiosity, were very remarkable, and testified no acuteness of understanding. Their complexion is a dull black, which they sometimes heighten by smutting their bodies, as was supposed from their leaving a mark behind on any clean substance. Their hair is perfectly woolly, and is clotted with grease and red ochre like that of the Hottentots. Their noses are broad and full, and the lower part of the face projects considerably. Their eyes are of a moderate size; and though they are not very quick or piercing, they give the countenance a frank, cheerful, and pleasing cast. Their teeth are not very white nor well set, and their mouths are wide; they wear their beards long and clotted with paint. They are upon the whole well proportioned, though their belly is rather protuberant. Their favourite attitude is to stand with one side forward, and one hand grasping across the back the opposite arm, which on this occasion hangs down by the side that projects.

Near the shore in the bay were observed some wretched constructions of sticks covered with bark; but these seemed to have been only temporary, and they had converted many of their largest trees into more comfortable and commodious habitations. The trunks of these were hollowed out to the height of six or seven feet by means of fire. That they sometimes dwell in them was manifest from their hearths in the middle made of clay, round which four or five persons might sit. These places of shelter are rendered durable by their leaving one side of the tree sound, so that it continues growing with great luxuriance.

DIEMERBROEK, ISBRAND, a learned professor of physic and anatomy at Utrecht, was born at Montfort, in Holland, in 1609, where he acquired great reputation by his lectures and his practice; and died at Utrecht in 1674. He wrote a treatise on the plague, which is esteemed; and several learned works in anatomy and medicine, which were printed at Utrecht in 1685 in folio.

DIEPPE, a handsome sea-port town of France, in Upper Normandy, in the territory of Caux; with a good harbour, an old castle, and two handsome moles. The parish church of St James is an elegant structure; and there is a tower from which, in fine weather, the coast of England may be seen. The principal trade consists in herrings, whittings, mackerel, ivory, toys, and laces. It was bombarded by the English in 1694, and it is not now so considerable as it was formerly. It is seated at the mouth of the river Argues, in E. Long. 1. 9. N. L. 49. 55.

DIES MARCHIÆ, was the day of congress or meeting of the English and Scots, annually appointed to be held on the marches or borders, in order to adjust all differences between them.

DIESIS, in *Music*, is the division of a tone less than a semitone; or an interval consisting of a less or imperfect semitone.

Diesis is the smallest and softest change or inflexion of the voice imaginable; it is called a *faint*, expressed thus X, by a St Andrew's cross or saltier.

DIESPITER, in antiquity, a name given to Jupiter; and signifying *diei pater*, "father of the day." St Augustin derives the name from *dies*, "day," and *partus*, "production, bringing forth;" it being Jupiter that brings forth the day. Of which sentiment were Servius and Macrobius; the former adding, that in the language of the Osci they called him *Lucencius*, as *Diespiter* in Latin.

DIET, in *Medicine*, according to some, comprehends the whole regimen or rule of life with regard to the six non-naturals; air, meats, and drinks, sleep and watching, motion and rest, passions of the mind, retentions and excretions. Others restrain the term of *diet* to what regards eating and drinking, or solid aliments and drinks. See *FOOD*.

The natural constitution of the body of man is such, that it can easily bear some changes and irregularities without much injury. Had it been otherwise, we should be almost constantly put out of order by every slight cause. This advantage arises from those wonderful communications of the inward parts, whereby, when one part is affected, another comes immediately to its relief.

Thus, when the body is too full, nature causes evacuations through some of the outlets; and for this reason it is, that diseases from inanition are generally more dangerous than from repletion; because we can more expeditiously diminish than increase the juices of the body. Upon the same account, also, though temperance be beneficial to all men, the ancient physicians advised persons in good health, and their own masters, to indulge a little now and then, by eating and drinking more plentifully than usual. But, of the two, intemperance in drinking is safer than in eating; and if a person has committed excess in the latter, cold water drank upon a full stomach will help digestion; to which it will be of service to add lemon juice, or elixir of vitriol. If he has eaten high-seasoned things, rich sauces, &c. then let him sit up for some little time, and afterwards sleep. But if a man happen to be obliged to fast, he ought to avoid all laborious work. From satiety it is not proper to pass directly to sharp hunger, nor from hunger to satiety; neither will it be safe to indulge absolute rest immediately after excessive labour,

nor

Dieppe
||
Diet.

Diet ||
Dietrich. nor suddenly to fall to hard work after long idleness. In a word, therefore, all changes in the way of living should be made by degrees.

The softer and milder kinds of aliment are proper for children, and for youth the stronger. Old people ought to lessen the quantity of their food, and increase that of their drink; but yet some allowance is to be made for custom, especially in the colder climates like ours; for as in these the appetite is keener, so is the digestion better performed. Mead's *Monita et Præcepta*.

DIET Drinks, a form in *Physic*, including all the medicated wines, ales, and wheys, used in chronic cases. They require a course or continuation to answer any intention of moment.

DIET of Appearance, in *Scots Law*, the day to which a defender is cited to appear in court; and every other day to which the court shall afterwards adjourn the consideration of the question.

DIET, or *Dyet*, in matters of policy, is used for the general assembly of the states or circles of the empire of Germany and of Poland, to deliberate and concert measures proper to be taken for the good of the public.

The general diet of the empire is usually held at Ratibon. It consists of the emperor, the nine electors, and the ecclesiastical princes; viz. the archbishops, bishops, abbots, and abbeesses; the secular princes, who are dukes, marquises, counts, viscounts, or barons; and the representatives of the imperial cities.— It meets on the emperor's summons, and any of the princes may send their deputies thither in their stead. The diet makes laws, raises taxes, determines differences between the several princes and states, and can relieve the subjects from the oppressions of their sovereigns.

The diet of Poland, or the assembly of the states, consisted of the senate and deputies, or representative of every palatinate or county and city; and usually met every two years, and oftener upon extraordinary occasions, if summoned by the king, or, in his absence, by the archbishop of Gnesna. The general diet of Poland sat but six weeks, and often broke up in a tumult much sooner; for one dissenting voice prevented their passing any laws, or coming to any resolutions, on what was proposed to them from the throne. Switzerland has also a general diet, which is usually held every year at Baden, and represents the whole Helvetic body; it seldom lasts longer than a month. Besides this general diet, there are diets of the Protestant cantons, and diets of the Catholic ones; the first assenible at Araw, and are convoked by the canton of Zurich; the second at Lucern, convoked by the canton of that name.

DIETETIC, denotes something belonging to diet, but particularly that part of physic which treats of this subject. See **DIET**, **FOOD**, and **DRINK**.

DIETRICH, or **DIETRICH**, **CHRISTIAN WILLIAM ERNEST**, a modern artist, who was born at Weimar in 1712. He resided chiefly at Dresden, where he was professor of the Academy of Arts. He was a painter of very extensive abilities, and succeeded both in history and landscape. We have by him a great number of small subjects, to the amount of 150 or more, which he engraved from his own compositions,

in the style (says Basan) of Oitade, of Laireffe, and of Salvator Rosa. Sixty of these etchings are exceedingly rare.

DIETS, a town in the circle of the Upper Rhine in Germany, situated on the river Loha, 20 miles north of Mentz, and subject to the house of Nassau-Orange. E. Long. 7. 40. N. Lat. 50. 28.

DIEU ET MON DROIT, i. e. *God and my right*, the motto of the royal arms of England, first assumed by King Richard I. to intimate that he did not hold his empire in vassalage of any mortal.

It was afterwards taken up by Edward III. and was continued without interruption to the time of the late King William, who used the motto *Je main tiendray*, though the former was still retained upon the great seal. After him Queen Anne used the motto *Semper eadæm*, which had been before used by Queen Elizabeth; but ever since Queen Anne, *Dieu et mon droit* continues to be the royal motto.

DIFF, is the name of an instrument of music among the Arabs, serving chiefly to beat time to the voice; it is a hoop, sometimes with pieces of brass fixed to it to make a jingling, over which a piece of parchment is distended. It is beat with the fingers, and is the true *tympañum* of the ancients.

DIFFARREATION, among the Romans, a ceremony whereby the divorce of their priests was solemnized. The word comes from the preposition *dis*; which is used, in composition, for *division* or *separation*; and *farreatio*, a ceremony with wheat, of *far*, "wheat."

Diffarreation was properly the dissolving of marriages contracted by confarreation; which were those of the pontifices or priests. Festus says, it was performed with a wheaten cake. Vigenere will have confarreation and diffarreation to be the same thing.

DIFFERENCE, in *Mathematics*, is the remainder, when one number or quantity is subtracted from another.

DIFFERENCE, in *Logic*, an essential attribute, belonging to some species, and not found in the genus; being the idea that defines the species. Thus body and spirit are the two species of substance, which in their ideas include something more than is included in the idea of substance. In body, for instance, is found impenetrability and extension; in spirit a power of thinking and reasoning: so that the difference of body is impenetrable extension, and the difference of spirit is cogitation.

DIFFERENCE, in *Heraldry*, a term given to a certain figure added to coats of arms, serving to distinguish one family from another; and to show how distant younger branches are from the elder or principal branch.

DIFFERENTIAL, (*Differentiale*), in the higher geometry, an infinitely small quantity, or a particle of quantity so small as to be less than any assignable one. It is called a *differential*, or *differential quantity*, because frequently considered as the difference of two quantities; and, as such, is the foundation of the *differential calculus*: Sir Isaac Newton, and the English, call it a *moment*, as being considered as the momentary increase of quantity. See **FLUXIONS**.

DIFFERENTIAL Equation, is an equation involving or containing differential quantities; as the equation

Diets ||
Differential Equation.

Differential Method || Digby. d'' instead of d''' , &c. also $x+1$ instead of x ; which being done, the series expressing the sums will be $0 + \frac{x+1}{1}A + \frac{x+1}{1} \cdot \frac{x}{2}d' + \frac{x+1}{1} \cdot \frac{x}{2} \cdot \frac{x-1}{3}d''$, &c. Or,

if the real number of terms of the lines be called z , that is, if $z=x+1$, or $x=z-1$, the sum of the series will be $Az + \frac{z-1}{1} \cdot \frac{z-1}{2}d' + \frac{z-1}{1} \cdot \frac{z-1}{2} \cdot \frac{z-2}{3}d''$, &c. See

De Moivre's Doct. of Chances, p. 59, 60; or his Miscel. Analyt. p. 153.; or Simpson's Essays, p. 95.

For ex. To find the sum of six terms of the series of squares $1+4+9+16+25+36$, of the natural numbers.

Terms.	d'	d''	d'''
1			
4	3	2	0
9	5	2	0
16	7	2	0
25	9		

Here $A=1$, $d'=3$, $d''=2$, $d'''=0$, and $z=6$; therefore the sum is $6 + \frac{6-1}{1} \cdot \frac{6-1}{2} \cdot 3 + \frac{6-1}{1} \cdot \frac{6-1}{2} \cdot \frac{6-2}{3} \cdot 2 = 6 + 45 + 40 = 91$ the sum required, viz. of $1+4+9+16+25+36$.

A variety of examples may be seen in the places above cited, or in Stirling's *Methodus Differentialis*, &c.

As to the differential method, it may be observed, that though Newton and some others have treated it as a method of describing an algebraic curve, at least of the parabolic kind, through any number of given points; yet the consideration of curves is not at all essential to it, though it may help the imagination. The description of a parabolic curve through given points, is the same problem as the finding of quantities from their given differences, which may always be done by algebra, by the resolution of simple equations. *Hutton's Math. Dict.*

DIFFORM, *Difformis*, (from *forma*, "a shape"), is a word used in opposition to *uniform*; and signifies, that there is no regularity in the form or appearance of a thing. The botanists use it as a distinction of the flowers of several species of plants.

DIFFUSE, an epithet applied to such writings as are wrote in a prolix manner. Among historians, Salust is reckoned sententious, and Livy diffuse. Thus also among the orators, Demosthenes is close and concise; Cicero, on the other hand, is diffuse.

DIFFUSION, the dispersion of the subtille effluvia of bodies into a kind of atmosphere all round them. Thus the light diffused by the rays of the sun, issues all round from that amazing body of fire.

DIGASTRICUS, in *Anatomy*, a muscle of the lower jaw, called also *Biventer*. See *ANATOMY, Table of the Muscles*.

DIGBY, SIR KENELM, an English philosopher, was born at Gothurst in Buckinghamshire in 1603, and became very illustrious for his virtue and learning. He was descended of an ancient family. His great-grandfather, accompanied by six of his brothers, fought valiantly at Bosworth field on the side of Henry VII. against the usurper Richard III. His father, Sir Everard Digby, was engaged in the gunpowder plot against King James I. and for that crime was beheaded; but his son was restored to his estate. King Charles I. made him gentleman of the bedchamber, commissioner

of the navy, and governor of the Trinity-house. He granted him letters of reprisal against the Venetians, by virtue of which he took several prizes with a small fleet under his command. He fought the Venetians near the port of Scanderoon, and bravely made his way through them with his booty. He was a great lover of learning, and translated several authors into English; and his "Treatise of the Nature of Bodies and the Immortality of the Soul," discovers great penetration and extensive knowledge. He applied to chemistry; and found out several useful medicines, which he gave freely away to people of all sorts, especially to the poor. He distinguished himself particularly by his sympathetic powder for the cure of wounds at a distance; his discourse concerning which made a great noise for a while. He had conferences with Des Cartes about the nature of the soul.

In the beginning of the civil wars, he exerted himself very vigorously in the king's cause; but he was afterwards imprisoned by the parliament's order, in Winchester-house, and had leave to depart thence in 1643. He afterwards compounded for his estate, but was ordered to leave the nation; when he went to France, and was sent on two embassies to Pope Innocent X. from the queen, widow to Charles I. whose chancellor he then was. On the restoration of Charles II. he returned to London; where he died in 1665, aged 60.

This eminent person, on account of his early talents, and great proficiency in learning, was compared to the celebrated Picus de Mirandola, who was one of the wonders of human nature. His knowledge, though various and extensive, appeared to be greater than it really was; as he had all the powers of elocution and address to recommend it. He knew how to shine in a circle of ladies or philosophers; and was as much attended to when he spoke on the most trivial subjects, as when he conversed on the most important. It is said that one of the princes of Italy, who had no child, was desirous that his princess should bring him a son by Sir Kenelm, whom he esteemed a just model of perfection.

DIGEST, (*Digestum*), a collection of the Roman laws, ranged and digested under proper titles, by order of the emperor Justinian.

That prince gave his chancellor Tribonianus a commission for this purpose; who, in consequence thereof, chose sixteen jurisconsulti, or lawyers, to work upon the same. These, accordingly, took out the best and finest decisions from the two thousand volumes of the ancient jurisconsulti, and reduced them all into one body; which was published in the year 529, under the name of the *Digest*. To this the emperor gave the force of a law, by a letter at the head of the work, which serves it as a preface.

The Digest makes the first part of the Roman law, and the first volume of the corpus or body of the civil law, contained in fifty books. It was translated into Greek under the same emperor, and called *Pandecta*. See **PANDECTS**.

Cujas says, that *Digest* is a common name for all books disposed in a good order and economy; and hence it is that Tertullian calls the Gospel of St Luke a Digest.

Hence also abridgments of the common law are denominated

Digby, Digest.

Digestion
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Digges.

denominated *digests* of the numerous cases, arguments, readings, pleadings, &c. dispersed in the year books, and other reports and books of law, reduced under proper heads or common places. The first was that of Statham, which comes as low as Henry VI. That of Fitzherbert was published in 1516; Brook's in 1573, of which Hughes's published in 1663, is a sequel. Rolls, Danvers, and Nelson, have also published Digests or abridgments of this kind, including the cases of later days; to which may be added the New Abridgment, Viner's Abridgment, &c.

DIGESTION, in the animal economy, is the dissolution of the aliments into such minute parts as are fit to enter the lacteal vessels, and circulate with the mass of blood. See ANATOMY *Index*.

DIGESTION, in *Chemistry*, is an operation which consists in exposing bodies to a gentle heat, in proper vessels, and during a certain time. This operation is very useful to favour the action of certain substances upon each other; as, for example, of well calcined, dry, fixed alkali upon rectified spirit of wine. When these two substances are digested together in a matras, with a gentle sand-bath heat, the spirit of wine acquires a yellow-reddish colour, and an alkaline quality. The spirit would not so well acquire these qualities by a stronger and shorter heat.

DIGESTIVE, in *Medicine*, such remedies as strengthen and increase the tone of the stomach, and assist in the digestion of foods. To this class belong all stomachics and strengtheners or corroborants.

DIGESTIVE, in *Surgery*, denotes a sort of unguent, plaster, or the like, that ripens and prepares the matter of wounds, &c. for suppuration.

DIGGES, LEONARD, an eminent mathematician in the 16th century, was descended from an ancient family, and born at Digges-court in the parish of Barham in Kent; but in what year is not known. He was educated for some time at Oxford, where he laid a good foundation of learning. Retiring from thence, he prosecuted his studies, and became an excellent mathematician, a skilful architect, and an expert surveyor of land, &c. He composed several books: as, 1. *Telesonicum*: briefly shewing the exact Measuring, and speedy Reckoning of all manner of Lands, Squares, Timber, Stones, Steeples, &c. 1556, 4to. Augmented and published again by his son Thomas Digges, in 1592; and also reprinted in 1647.—2. A Geometrical Practical Treatise, named *Pantometria*, in three books. This he left in manuscript; but after his death, his son supplied such parts of it as were obscure and imperfect, and published it in 1591, folio; subjoining, "A Discourse Geometrical of the five regular and Platonic bodies, containing sundry theoretical and practical propositions, arising by mutual conference of these solids, Inscription, Circumscription, and Transformation."—3. Prognostication Everlasting of right good effect: or Choice Rules to judge the Weather by the Sun, Moon, and Stars, &c. in 4to. 1555, 1556, and 1564: corrected and augmented by his son, with divers general tables, and many compendious rules, in 4to, 1592. He died about the year 1574.

DIGGES, Thomas, only son of Leonard Digges, after a liberal education from his tenderest years, went and studied for some time at Oxford; and by the improvements he made there, and the subsequent instruc-

tions of his learned father, became one of the best mathematicians of his age. When Queen Elizabeth sent some forces to assist the oppressed inhabitants of the Netherlands, Mr Digges was appointed muster-master general of them; by which he became well skilled in military affairs; as his writings afterward shewed. He died in 1595.

Mr Digges, beside revising, correcting, and enlarging some pieces of his father's already mentioned, wrote and published the following learned works himself: viz. 1. *Alexandre Scale Mathematicæ*; or Mathematical Wings or Ladders, 1573, 4to: A book which contains several demonstrations for finding the parallaxes of any comet, or other celestial body, with a correction of the errors in the use of the radius astronomicus.—2. An Arithmetical Military Treatise, containing so much of Arithmetic as is necessary towards military discipline, 1579, 4to.—3. A Geometrical Treatise, named *Stratoticos*, requisite for the perfection of Soldiers, 1579, 4to. This was begun by his father, but finished by himself. They were both reprinted together in 1590, with several additions and amendments, under this title: "An Arithmetical Warlike Treatise, named *Stratoticos*, compendiously teaching the science of Numbers, as well in Fractions as Integers, and so much of the Rules and Equations Algebraical, and art of Numbers Cosical, as are requisite for the profession of a souldier. Together with the Moderne militaire discipline, offices, lawes, and orders in every well-governed campe and armie, inviolably to be observed." At the end of this work there are two pieces; the first, "A briefe and true report of the proceedings of the earle of Leycester, for the reliefe of the town of Sluce, from his arrival at Vlissing, about the end of June 1587, untill the surrendrie thereof 26 Julii next ensuing. Whereby it shall plainlie appear, his excellencie was not in any fault for the losse of that towne:" the second, "A briefe discourse what orders were best for repulsing of foraine forces, if at any time they should invade us by sea in Kent or elsewhere."—4. A perfect Description of the Celestial Orbs, according to the most ancient doctrine of the Pythagoreans, &c. This was placed at the end of his father's "Prognostication Everlasting, &c." printed in 1592, 4to.—5. A humble Motive for Association to maintain the religion established, 1601, 8vo. To which is added, his Letter to the same purpose to the archbishops and bishops of England.—6. England's Defence: or, A Treatise concerning Invasion. This is a tract of the same nature with that printed at the end of his *Stratoticos*, and called, A briefe Discourse, &c. It was written in 1599, but not published till 1686.—7. A Letter printed before Dr John Dee's *Parallaticæ Commentationis praxosque nucleus quidam*, 1573, 4to.—Beside these, and his *Nova Corpora*, he left several mathematical treatises ready for the press; which, by reason of lawsuits and other avocations, he was hindered from publishing.

DIGGING, among miners, is appropriated to the operation of freeing any kind of ore from the bed or stratum in which it lies, where every stroke of their tools turns to account: in contradistinction to the openings made in search of such ore, which are called *hatches*, or *essay-hatches*; and the operation itself, *tracing of mines*, or *hatching*.

When a bed of ore is discovered, the beele-men, so called

Digges,
Digging.

Digit
||
Dignity.

Dignity.

called from the instrument they use, which is a kind of pickaxe, free the ore from the fossils around it; and the shovel-men throw it up from one shamble to another, till it reaches the mouth of the hatch.

In some mines, to save the expence as well as fatigue of the shovel-men, they raise the ore by means of a winder and two buckets, one of which goes up as the other comes down.

DIGIT, in *Astronomy*, the twelfth part of the diameter of the sun or moon, used to express the quantity of an eclipse. Thus an eclipse is said to be of six digits, when six of these parts are hid.

DIGITS, or *Monades*, in *Arithmetic*, signify any integer under 10; as 1, 2, 3, 4, 5, 6, 7, 8, 9, and by means of which all numbers are expressed.

DIGIT is also a measure taken from the breadth of the finger. It is properly three fourths of an inch, and contains the measure of four barley corns laid breadthwise.

DIGITALIS, FOX-GLOVE: A genus of plants, belonging to the didynamia class; and in the natural method ranking under the 28th order, *Lurida*. See *BOTANY Index*.

Fox-glove has been employed in cases of hæmoptysis, of phtisis, and of mania, with apparent good effects: but its use in these diseases is much less common than in dropsy. It should be administered with great caution. See *MEDICINE*, and *MATERIA MEDICA Index*.

DIGITATED, among botanists. See *BOTANY Index*.

DIGLYPH, in *Architecture*, a kind of imperfect triglyph, console, or the like; with two channels or engravings, either circular or angular.

DIGNE, an episcopal town in the department of the Lower Alps, formerly Provence, in France, famous for the baths that are near it. It is seated on a river called Bleone, 30 miles S. by W. of Embrun, in E. Long. 6. 12. N. Lat. 44. 10.

DIGNITARY, in the canon law, a person who holds a dignity, that is, a benefice which gives him some pre-eminence over mere priests and canons. Such is a bishop, dean, archdeacon, prebendary, &c.

DIGNITY, as applied to the titles of noblemen, signifies honour and authority. And dignity may be divided into superior and inferior; as the titles of duke, earl, baron, &c. are the highest names of dignity; and those of baronet, knight, serjeant at law, &c. the lowest. Nobility only can give so high a name of dignity as to supply the want of a surname in legal proceedings; and as the omission of a name of dignity may be pleaded in abatement of a writ, &c. so it may be where a peer who has more than one name of dignity, is not named by the most noble. No temporal dignity of any foreign nation can give a man a higher title here than that of *ESQUIRE*.

DIGNITY, in the human character, the opposite of *Meanness*.

Man is endued with a *SENSE* of the worth and excellence of his nature: he deems it more perfect than that of the other beings around him; and he perceives that the perfection of his nature consists in virtue, particularly in virtues of the highest rank. To express that sense, the term *dignity* is appropriated. Further, to behave with dignity, and to refrain from all mean actions, is felt to be, not a virtue only, but a duty:

it is a duty every man owes to himself. By acting in that manner, he attracts love and esteem: by acting meanly, or below himself, he is disapproved and contemned.

This sense of the dignity of human nature reaches even our pleasures and amusements. If they enlarge the mind by raising grand or elevated emotions, or if they humanize the mind by exercising our sympathy, they are approved as suited to the dignity of our nature: if they contract the mind by fixing it on trivial objects, they are contemned as not suited to the dignity of our nature. Hence, in general, every occupation, whether of use or amusement, that corresponds to the dignity of man, is termed *manly*; and every occupation below his nature, is termed *childish*.

To those who study human nature, there is a point which has always appeared intricate: How comes it that generosity and courage are more esteemed, and bestow more dignity, than good nature, or even justice; though the latter contribute more than the former to private as well as to public happiness? This question, bluntly proposed, might puzzle even a philosopher; but, by means of the foregoing observations, will easily be solved. Human virtues, like other objects, obtain a rank in our estimation, not from their utility, which is a subject of reflection, but from the direct impression they make on us. Justice and good nature are a sort of negative virtues, that scarce make any impression but when they are transgressed: courage and generosity, on the contrary, producing elevated emotions, enliven the great sense of a man's dignity, both in himself and in others; and for that reason, courage and generosity are in higher regard than the other virtues mentioned: we describe them as grand and elevated, as of greater dignity, and more praiseworthy.

This leads us to examine more directly emotions and passions with respect to the present subject: and it will not be difficult to form a scale of them, beginning with the meanest, and ascending gradually to those of the highest rank and dignity. Pleasure felt as at the organ of sense, named *corporeal pleasure*, is perceived to be low; and when indulged to excess, is perceived also to be mean; for that reason, persons of any delicacy dissemble the pleasure they take in eating and drinking. The pleasures of the eye and ear, having no organic feeling, and being free from any sense of meanness, are indulged without any shame: they even rise to a certain degree of dignity when their objects are grand or elevated. The same is the case of the sympathetic passions: a virtuous person behaving with fortitude and dignity under cruel misfortunes, makes a capital figure; and the sympathizing spectator feels in himself the same dignity. Sympathetic distress at the same time never is mean: on the contrary, it is agreeable to the nature of a social being, and has general approbation. The rank that love possesses in the scale depends in a great measure on its objects: it possesses a low place when founded on external properties merely; and is mean when bestowed on a person of inferior rank without any extraordinary qualification: but when founded on the more elevated internal properties, it assumes a considerable degree of dignity. The same is the case of friendship. When gratitude is warm, it animates the mind; but it scarce rises to dignity.

Dignity. Joy bestows dignity when it proceeds from an elevated cause.

If we can depend upon induction, dignity is not a property of any disagreeable passion: one is slight, another severe; one depresses the mind, another animates it: but there is no elevation, far less dignity, in any of them. Revenge, in particular, though it inflame and swell the mind, is not accompanied with dignity, not even with elevation: it is not however felt as mean or grovelling, unless when it takes indirect measures for gratification. Shame and remorse, though they sink the spirits, are not mean. Pride, a disagreeable passion, bestows no dignity in the eye of a spectator. Vanity always appears mean; and extremely so where founded, as commonly happens, on trivial qualifications.

We proceed to the pleasures of the understanding, which possess a high rank in point of dignity. Of this every one will be sensible, when he considers the important truths that have been laid open by science; such as general theorems, and the general laws that govern the material and moral worlds. The pleasures of the understanding are suited to man as a rational and contemplative being, and they tend not a little to enoble his nature; even to the Deity he stretcheth his contemplations, which, in the discovery of infinite power, wisdom, and benevolence, afford delight of the most exalted kind. Hence it appears, that the fine arts, studied as a rational science, afford entertainment of great dignity; superior far to what they afford as a subject of taste merely.

But contemplation, however in itself valuable, is chiefly respected as subservient to action; for man is intended to be more an active than a contemplative being. He accordingly shows more dignity in action than in contemplation: generosity, magnanimity, heroism, raise his character to the highest pitch: these best express the dignity of his nature, and advance him nearer to divinity than any other of his attributes.

Having endeavoured to assign the efficient cause of dignity and meanness, by unfolding the principle on which they are founded, we proceed to explain the final cause of the dignity or meanness bestowed upon the several particulars above mentioned, beginning with corporeal pleasures. These, as far as useful, are, like justice, fenced with sufficient sanctions to prevent their being neglected: hunger and thirst are painful sensations; and we are incited to animal love by a vigorous propensity: were corporeal pleasures dignified over and above with a place in a high class, they would infallibly overturn the balance of the mind, by outweighing the social affections. This is a satisfactory final cause for refusing to these pleasures any degree of dignity: and the final cause is not less evident of their meanness when they are indulged to excess. The more refined pleasures of external sense, conveyed by the eye and the ear from natural objects and from the fine arts, deserve a high place in our esteem, because of their singular and extensive utility: in some cases they rise to a considerable dignity; and the very lowest pleasures of the kind are never esteemed mean or grovelling. The pleasure arising from wit, humour, ridicule, or from what is simply ludicrous, is useful, by relaxing the mind after the fatigue of more manly

occupations: but the mind, when it surrenders itself to pleasure of that kind, loses its vigour, and sinks gradually into sloth. The place this pleasure occupies in point of dignity is adjusted to these views: to make it useful as a relaxation, it is not branded with meanness; to prevent its usurpation, it is removed from that place but a single degree: no man values himself for that pleasure, even during gratification; and if it have engrossed more of his time than is requisite for relaxation, he looks back with some degree of shame.

In point of dignity, the social emotions rise above the selfish, and much above those of the eye and ear; man is by his nature a social being; and to qualify him for society, it is wisely contrived that he should value himself more for being social than selfish.

The excellency of man is chiefly discernible in the great improvements he is susceptible of in society: these, by perseverance, may be carried on progressively, above any assignable limits; and even abstracting from revelation, there is great probability that the progress begun here will be completed in some future state. Now, as all valuable improvements proceed from the exercise of our rational faculties, the Author of our nature, in order to excite us to a due use of these faculties, hath assigned a high rank to the pleasures of the understanding: their utility, with respect to this life as well as a future, entitles them to that rank.

But as action is the aim of all our improvements, virtuous actions justly possess the highest of all the ranks. These, we find, are by nature distributed into different classes, and the first in point of dignity assigned to actions that appear not the first in point of use: generosity, for example, in the sense of mankind is more respected than justice, though the latter is undoubtedly more essential to society; and magnanimity, heroism, undaunted courage, rise still higher in our esteem; the reason of which is explained above.

DIGNITY, in *Oratory*, is one of the three parts of general elocution; and consists in the right use of tropes and figures. See *ORATORY*, N^o 48.

DIGRESSION, in *Oratory*, is defined by Quintilian, agreeably to the etymology of the word, to be a going off from the subject we are upon to some different thing, which, however, may be of service to it. See *ORATORY*, N^o 37.

DIGYNIA, (from *dis*, twice, and *gyn*, a woman), the name of an order or secondary division in each of the first 13 classes, except the 9th, in Linnæus's sexual method; consisting of plants, which to the classic character, whatever it is, add the circumstance of having two styles or female organs.

DII, the divinities of the ancient inhabitants of the earth, were very numerous. Every object which caused terror, inspired gratitude, or bestowed affluence, received the tribute of veneration. Man saw a superior agent in the stars, the elements, or the trees; and supposed that the waters which communicated fertility to his fields and possessions, were under the influence and direction of some invisible power inclined to favour and to benefit mankind. Thus arose a train of divinities which imagination arrayed in different forms, and armed with different powers. They were endowed with understanding, and were actuated by the same passions

Dii
||
Dijon.

passions which daily afflict the human race; and those children of superstition were appeased or provoked as the imperfect being which gave them birth. Their wrath was mitigated by sacrifices and incense, and sometimes human victims bled to expiate a crime which superstition alone supposed to exist. The sun, from his powerful influence and animating nature, first attracted the notice and claimed the adoration of the uncivilized inhabitants of the earth. The moon also was honoured with sacrifices and addressed in prayers; and after immortality had been liberally bestowed on all the heavenly bodies, mankind classed among their deities the brute creation, and the cat and the fow shared equally with Jupiter himself, the father of gods and men, the devout veneration of their votaries. This immense number of deities has been divided into different classes according to the will and pleasure of the mythologists. The Romans, generally speaking, reckoned two classes of the gods, the *dii majorum gentium*, or *dii confentes*, and the *dii minorum gentium*. The former were 12 in number, six males and six females. [*Vid. CONSENTES.*] In the class of the latter were ranked all the gods which were worshipped in different parts of the earth. Besides these there were some called *dii selecti*, sometimes classed with the 12 greater gods; these were Janus, Saturn, the Genius, the Moon, Pluto, and Bacchus. There were also some called demigods, that is, who deserved immortality by the greatness of their exploits, and for their uncommon services to mankind. Among these were Priapus, Vertumnus, Hercules, and those whose parents were some of the immortal gods. Besides these, all the passions and the moral virtues were reckoned as powerful deities, and temples were raised to a goddess of concord, peace, &c. According to the authority of Hesiod, there were no less than 30,000 gods that inhabited the earth, and were guardians of men, all subservient to the power of Jupiter. To these, succeeding ages have added an almost equal number; and indeed they were so numerous, and their functions so various, that we find temples erected, and sacrifices offered, to unknown gods. It is observable, that all the gods of the ancients have lived upon earth as mere mortals; and even Jupiter, who was the ruler of heaven, is represented by the mythologists as a helpless child; and we are acquainted with all the particulars that attended the birth and education of Juno. In process of time, not only good and virtuous men, who had been the patrons of learning and the supporters of liberty, but also thieves and pirates, were admitted among the gods, and the Roman senate courteously granted immortality to the most cruel and abandoned of their emperors.

DIJAMBUS, in *Poetry*, the foot of a Latin verse of four syllables; it is compounded of two *iambics*, as *sevēritās*.

DIJON, an ancient, and very considerable town of France; formerly capital of Burgundy, and of the Dijonnois; now the episcopal town of the department of Côte d'Or. Before the revolution it had a parliament, a mint, an university, academy of sciences, an abbey, and a citadel. Most part of the churches and public structures are very beautiful, and in one of the squares there was an equestrian statue of Louis XIV. It is seated in a very pleasant plain, between two small ri-

vers, which produces excellent wine. It contains 20,000 inhabitants. E. Long. 5. 7. N. Lat. 47. 19.

DIKE, a ditch or drain, made for the passage of waters.—The word seems formed from the verb *to dig*; though others choose to derive it from the Dutch, *dijk*, a dam, sea-bank, or wall.

DIKE, or *Dyke*, also denotes a work of stone, timber or fascines, raised to oppose the entrance or passage of the waters of the sea, a river, lake, or the like.—The word comes from the Flemish *dyk*, or *diik*, a heap of earth to bound or stem the water. Junius and Menage take the Flemish to have borrowed their word from the Greek *τειχος*, *wall*. Guichard derives it from the Hebrew *daghab*. These dikes are usually elevations of earth, with hurdles of stakes, stones, and other matters.

The dike of Rochelle is made with vessels fastened to the bottom. The dikes of Holland are frequently broke through, and drown large tracts of land.

DILAPIDATION, in *Law*, a wasteful destroying or letting buildings, especially parsonage houses, &c. run to decay, for want of necessary reparation. If the clergy neglect to repair the houses belonging to their benefices, the bishop may sequester the profits thereof for that purpose. And in these cases, a prosecution may be brought, either in the spiritual court or at common law, against the incumbent himself, or against his executor or administrator.

DILATATION, in *Physics*, a motion of the parts of any body, by which it is so expanded as to occupy a greater space. This expansive motion depends upon the elastic power of the body; whence it appears that dilatation is different from rarefaction, this last being produced by means of heat.

DILATATOIRES, in *Anatomy*, a name given to several muscles in the human body. See *ANATOMY*, *Table of the Muscles*.

DILATORY PLEAS, in *Law*, are such as are put in merely for delay; and there may be a demurrer to a dilatory plea, or the defendant shall be ordered to plead better, &c. The truth of dilatory pleas is to be made out by affidavit of the fact, &c. by stat. 4 and 5 Anne. See *PLEA*.

DILATRIS, a genus of plants, belonging to the triandria class. See *BOTANY Index*.

DILEMMA, in *Logic*, an argument equally conclusive by contrary suppositions. See *LOGIC*.

DILIGENCE, in *Scots Law*, signifies either that care and attention which parties are bound to give, in implementing certain contracts or trusts, and which varies according to the nature of the contract; or it signifies certain forms of law, whereby the creditor endeavours to operate his payment, either by affecting the person or estate of the debtor. See *LAW Index*.

DILL. See *ANETHUM*, *BOTANY Index*.

DILLEMBURG, a town of Germany, in Wetteravia, and capital of a county of the same name. It is subject to a prince of the house of Nassau, and is situated in E. Long. 8. 24. N. Lat. 50. 45.

DILLENGEN, a town of Germany, in the circle of Suabia, with a university, and where the bishop of Augsburg resides. It is seated near the Danube, in E. Long. 10. 20. N. Lat. 48. 30.

DILLENIA, a genus of plants belonging to the polyandria class. See *BOTANY Index*.

DILUTE.

Dike
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Dillenia.

Dilute
||
Dimfdale.

DILUTE. To dilute a body is to render it liquid; or, if it were liquid before, to render it more so by the addition of a thinner thereto. These things thus added are called *diluents*, or *dilutors*.

DIMACHE, (from *dis*, *double*, and *μαχη*, *I fight*), in antiquity, a kind of horsemen first instituted by Alexander. Their armour was lighter than that of the infantry, and at the same time heavier than that used by horsemen, so that they could act as horse or foot as occasion required.

DIMENSION, in *Geometry*, is either length, breadth, or thickness; hence, a line hath one dimension, viz. length; a superficies two, viz. length and breadth; and a body, or solid, has three, viz. length, breadth, and thickness.

DIMINUTION, in *Architecture*, a contraction of the upper part of a column, by which its diameter is made less than that of the lower part*.

* See *Architecture*,
N^o 38.

DIMINUTION, in *Music*, is the abating something of the full value or quantity of any note.

DIMINUTIVE, in *Grammar*, a word formed from some other, to soften or diminish the force of it, or to signify a thing is little in its kind. Thus, *cellule* is a diminutive of *cell*, *globule* of *globe*, *hillock* of *hill*.

DIMISSORY LETTERS, (*Literæ Dimissoriae*), in the canon law, a letter given by a bishop to a candidate for holy orders, having a title in his diocese, directed to some other bishop, and giving leave for the bearer to be ordained by him.

When a person produces letters of ordination or tonsure, conferred by any other than his own diocesan, he must at the same time produce the letters dimissory given by his own bishop, on pain of nullity.

Letters dimissory cannot be given by the chapter, *sede vacante*; this being deemed an act of voluntary jurisdiction which ought to be reserved to the successor.

DIMCRITÆ, a name given to the Apollinarists, who at first held, that the Word only assumed a human body, without taking a reasonable soul like ours; but being at length convinced by formal texts of Scripture, they allowed, that he did assume a soul, but without understanding; the Word supplying the want of that faculty. From this way of separating the understanding from the soul, they became denominated *dimcritēs*, q. d. *dividers, separators*, of *div*, and *μοιραω* *I divide*.

DIMSDALE, THOMAS, Baron, greatly distinguished for his practice of inoculation for the small-pox, was the son of a surgeon and apothecary at Theydon Gernon in Essex, and was born in the year 1712. His family belonged to the society of Quakers; and his grandfather accompanied William Penn to America; but soon after returned and settled in his native village. Thomas was brought up to his profession first under his father, and afterwards he became a pupil in St Thomas Hospital, London. He commenced his practice at Hertford about 1734, and married the only daughter of Nathanael Brasley, of Roxford, near that town, an eminent banker in London, and representative of Hertford in four successive parliaments. She died in 1744, and left no children. To relieve his mind under this loss, he voluntarily offered his assistance to the physicians and surgeons in the army under the duke of Cumberland, and continued with it till after the surrender of Carlisle to the king's forces, when he recei-

ved the duke's thanks, and returned to Hertford. In 1746 he married Anne Iles, a relation of his first wife, and by her fortune, and that which he acquired by the death of the widow of Sir John Dimfdale of Hertford, he retired from practice; but, his family becoming numerous, and seven of his ten children being living, he resumed it, and took the degree of doctor of medicine, in 1761. Having fully satisfied himself about the new method of treating persons under inoculation for the small-pox, he published his treatise on it in 1776, which was soon circulated all over the continent, and translated into all its languages, not omitting the Russian. He concludes with saying that, "although the whole process may have some share in the success, it, in my opinion, consists chiefly in the method of inoculating with recent fluid matter, and the management of the patients at the time of eruption." This proof of his professional knowledge occasioned his being invited to inoculate the empress Catherine and her son, in 1768, of which he gives a particular account in his Tracts on Inoculation, 1781. His reward for this was an appointment of actual counsellor of state and physician to her imperial majesty, with an annuity of 500l. the rank of a baron of the Russian empire, to be borne by his eldest lawful descendant in succession, and a black wing of the Russian eagle in a gold shield in the middle of his arms, with the customary helmet, adorned with the baron's coronet, over the shield; to receive immediately 10,000l. and 2000l. for travelling charges, miniature pictures of the empress and her son, and the same title to his son, to whom the grand duke gave a gold snuff-box, richly set with diamonds. The baron inoculated numbers of people at Moscow; and, resisting the empress's invitation to reside as her physician in Russia, he and his son were admitted to a private audience of Frederic II. king of Prussia, at Sans Souci, and thence returned to England. In 1779, he lost his second wife, who left him seven children. He afterwards married Elizabeth daughter of William Dimfdale, of Bishops-Stortford, who survived him. He was elected representative of the borough of Hertford in 1780; and declined all practice, except for the relief of the poor. He went to Russia once more, in 1781, to inoculate the late emperor and his brother Constantine, sons of the grand duke; and, as he passed through Brussels, the late emperor, Joseph, received him in private, and wrote in his presence a letter, which he was to convey to the empress of Russia. In 1790, his son, Baron Nathanael, was elected for the borough of Hertford, on his resignation and retirement to Bath, for several winters; but at last he fixed together at Hertford, and died, aged 89, Dec. 30, 1800, after an illness of about three weeks. About 17 years before his death he felt the sight of one eye declining, having before lost that of the other, but recovered both by the operation of the cataract, by Wenzel.

DINDYMA, -ORUM, (Virgil,) from *Dindymus*, -i; a mountain allotted by many to Phrygia. Strabo has two mountains of this name; one in Mysia near Cyzicus; the other in Gallogræcia near Pessinus; and none in Phrygia. Ptolemy extends this ridge from the borders of Troas, through Phrygia, to Gallogræcia: though therefore there were two mountains called *Dindymus* in particular, both sacred to the mother of the gods, and none of them in Phrygia Major; yet there

In Dimfdale,
Dindyma.

Dingwal ||
Diocese. there might be several hills and eminences in it, on which this goddess was worshipped, and therefore called *Dindyma* in general. Hence Cybele is furnished *Dindymane*, (Horace).

DINGWAL, a royal borough of Scotland in the shire of Ross, seated on the frith of Cromarty, 15 miles west of the town of Cromarty. Near it runs the river Conel, famous for producing pearls. W. Long. 4. 15. N. Lat. 57. 45. Dingwal was a Scotch barony in the person of the duke of Ormond in right of his lady, but forfeited in 1715.

DINNER, the meal taken about the middle of the day.—The word is derived from the French *dîner*, which Du Cange derives from the barbarous Latin *dîsnare*. Henry Stephens derives it from the Greek *δειπνειν*; and will have it wrote *dîpner*. Menage deduces it from the Italian *desinare*, “to dine”; and that from the Latin *desinere*, “to leave off work.”

It is generally agreed to be the most salutary to make a plentiful dinner, and to eat sparingly at supper. This is the general practice among us. The French, however, in imitation of the ancient Romans, defer their good cheer to the evening; and Bernardinus Paternus, an eminent Italian physician, maintains it to be the most wholesome method, in a treatise expressly on the subject.

The grand Tartar emperor of China, after he has dined, makes publication by his heralds, that he gives leave for all the other kings and potentates of the earth to go to dinner; as if they waited for his leave.

DINOCRATES, a celebrated architect of Macedonia who rebuilt the temple of Ephesus, when burnt by Erostratus, with much more magnificence than before. Vitruvius informs us that Dinocrates proposed to Alexander the Great to convert Mount Athos into the figure of a man, whose left hand should contain a walled city, and all the rivers of the mount flow into his right, and from thence into the sea! He also conceived a scheme for building the dome of the temple of Arsinoe at Alexandria, of loadstone; that should by its attraction uphold her iron image in the centre, suspended in the air! Projects which at least showed a vast extent of imagination.

DIO CHRYSOSTOM, that is, *Golden Mouth*, a celebrated orator and philosopher of Greece, in the first century, was born at Prusa in Bithynia. He attempted to persuade Vespasian to quit the empire; was hated by Domitian; but acquired the esteem of Trajan. This last prince took pleasure in conversing with him, and made him ride with him in his triumphal chariot. There are still extant 80 of Dio's orations, and some other of his works; the best edition of which is that of Hermand Samuel Raimarus, in 1750, in folio.

DIOCESE, or DIOCESS, the circuit or extent of the jurisdiction of a BISHOP. The word is formed from the Greek *διοικησις*, *government, administration*; formed of *διοικω*, which the ancient glossaries render *administro, moderor, ordino*: hence *διοικησις της πολιως*, the *administration or government of a city*.

DIOCESE is also used in ancient authors, &c. for the province of a METROPOLITAN.

Diocesis, (*διοικησις*), was originally a civil government, or prefecture, composed of divers provinces.

The first division of the empire into dioceses is ordinarily ascribed to Constantine; who distributed the

whole Roman state into four, viz. the diocese of Italy, the diocese of Illyria, that of the East, and that of Africa. And yet long before Constantine, Strabo, who wrote under Tiberius, takes notice, lib. xiii. p. 432. that the Romans had divided Asia into dioceses; and complains of the confusion such a division occasioned in geography, Asia being no longer divided by people, but by dioceses, each whereof had a tribunal or court, where justice was administered. Constantine then was only the institutor of those large dioceses, which comprehended several metropolises and governments; the former dioceses only comprehending one jurisdiction or district, or the country that had resort to one judge, as appears from this passage in Strabo, and (before Strabo) from Cicero himself, lib. iii. *epist. ad famil.* 9. and lib. xiii. *ep.* 67.

Thus, at first a province included divers dioceses; and afterwards a diocese came to comprise divers provinces. In after times the Roman empire became divided into 13 dioceses or prefectures; though, including Rome, and the suburbicary regions, there were 14. These 14 dioceses comprehended 120 provinces: each province had a proconsul, who resided in the capital or metropolis; and each diocese of the empire had a consul, who resided in the principal city of the district.

On this civil constitution the ecclesiastical one was afterwards regulated: each diocese had an ecclesiastical vicar or primate, who judged finally of all the concerns of the church within his territory.

At present there is some further alteration: for diocese does not now signify an assemblage of divers provinces; but is limited to a single province under a metropolitan, or more commonly to the single jurisdiction of a bishop.

Gul. Brito affirms diocese to be properly the territory and extent of a baptismal or parochial church; whence divers authors use the word to signify a simple parish. See PARISH.

DIOCLEIA, (*Διοκλειαν*), in antiquity, a solemnity kept in the spring at Megara, in memory of the Athenian hero, who died in the defence of the youth he loved.

DIOCLESIANUS, CAIUS VALERIUS JOVIUS, a celebrated Roman emperor, born of an obscure family in Dalmatia in 245. He was first a common soldier, and by merit and success he gradually rose to the office of a general; and at the death of Numerian in 284 he was invested with imperial power. In this high station he rewarded the virtues and fidelity of Maximian, who had shared with him all the subordinate offices in the army, by making him his colleague on the throne. He created two subordinate emperors, Constantius and Galerius, whom he called Cæsars, whilst he claimed for himself and his colleague the superior title of Augustus. Dioclesian has been celebrated for his military virtues; and though he was naturally unpolished by education and study, yet he was the friend and patron of learning and true genius. He was bold and resolute, active and diligent, and well acquainted with the arts, which will endear a sovereign to his people, and make him respectable even in the eyes of his enemies. His cruelty, however, against the followers of Christianity, has been deservedly branded with infamy. After he had reigned 22 years in the greatest prosperity, he publicly abdicated

Diocleia;
Dioclesianus.

Dioclati
||
Diocæcia.

dedicated the crown at Nicomedia in 305, and retired to a private station at Salona. Maximian his colleague followed his example, but not from voluntary choice; and when he some time after endeavoured to rouse the ambition of Dioclesian, and persuade him to reassume the imperial purple, he received for answer, that Dioclesian took now more delight in cultivating his little garden than he formerly enjoyed in a palace, when his power was extended over all the earth. He lived nine years after his abdication in the greatest security and enjoyment at Salona, and died in 314, in the 68th year of his age. Dioclesian is the first sovereign who voluntarily resigned his power. His bloody persecution of the Christians forms a chronological era, called the *era of Dioclesian*, or of the martyrs. It was for a long time in use in theological writings, and is still followed by the Copts and Abyssinians. It commenced August 29. 284.

DIODATI, JOHN, a famous minister, and professor of theology at Geneva, was born at Lucca in 1579, and died at Geneva in 1652. He is distinguished by translations, 1. Of the Bible into Italian, with notes, Geneva, 1607. 4to. The best edition at Geneva in 1641, folio. This is said to be more a paraphrase than a translation, and the notes rather divine meditations than critical reflections. 2. Of the Bible into French, Geneva, 1644. 3. Of Father Paul's History of the Council of Trent into French.

DIODIA, a genus of plants belonging to the tetrandria class, and in the natural method ranking under the 47th order, *Stellateæ*. See *BOTANY Index*.

DIODON, or SUN-FISH, a genus of fishes belonging to the order of amphibia nantes. See *ICHTHYOLOGY Index*.

DIODORUS, an historian, surnamed *Siculus* because he was born at Argyra in Sicily. He wrote a history of Egypt, Persia, Syria, Media, Greece, Rome, and Carthage; and it is said that he visited all the places of which he has made mention in his history. It was the labour of 30 years. He is, however, too credulous in some of his narrations; and often wanders far from the truth. He often dwells too long upon fabulous reports and trifling incidents; while events of the greatest importance to history are treated with brevity, and sometimes passed over in silence. He lived in the age of Julius Cæsar and Augustus; and spent much time at Rome to procure information, and authenticate his historical narrations. This important work, which he composed in Greek, contained 40 books, of which there are only 15 remaining. The style is clear and neat, and very suitable to history. The best edition is that of Amsterdam, 1743, in 2 vols folio.

DICECIA, (from *dis*, twice, and *oikos*, a house or habitation) two houses. The name of the 22d class in Linnæus's sexual method, consisting of plants, which having no hermaphrodite flowers, produce male and female flowers on separate roots. These latter only ripen seeds; but require for that purpose, according to the sexualists, the vicinity of a male plant; or the aspersions, that is, sprinkling of the male dust. From the seeds of the female flowers are raised both male and female plants. The plants then in the class dicecia are all male and female; not hermaphrodite, as in the greater number of classes; nor with male and female

flowers upon one root, as in the class monœcia of the *Diogenes*. same author. See *BOTANY Index*.

DIOGENES of Apollonia, in the island of Crete, held a considerable rank among the philosophers who taught in Ionia before Socrates appeared at Athens. He was the scholar and successor of Anaximenes, and in some measure rectified his master's opinion concerning air being the cause of all things. It is said, that he was the first who observed that air was capable of condensation and rarefaction. He passed for an excellent philosopher, and died about the 450th year before the Christian era.

DIOGENES the Cynic, a famous philosopher, was the son of a banker of Sinope in Pontus. Being banished with his father for coining false money, he retired to Athens, where he studied philosophy under Antisthenes. He added new degrees of austerity to the sect of the Cynics, and never did any philosopher carry so far a contempt for the conveniences of life. He was one of those extraordinary men who run every thing to extremity, without excepting even reason itself; and who confirm the saying, that "there is no great genius without a tincture of madness." He lodged in a tub; and had no other moveables besides his staff, wallet and wooden bowl, which last he threw away on seeing a boy drink out of the hollow of his hand. He used to call himself a vagabond, who had neither house nor country; was obliged to beg, was ill clothed, and lived from hand to mouth: and yet, says Ælian, he took as much pride in these things as Alexander could in the conquest of the world. He was not indeed a jot more humble than those who are clothed in rich apparel, and fare sumptuously every day. He looked down on all the world with scorn; he magisterially censured all mankind, and thought himself unquestionably superior to all other philosophers. Alexander one day paid him a visit, and made him an offer of riches or any thing else; but all that the philosopher requested of him was, to stand from betwixt the sun and him. As if he had said, "Do not deprive me of the benefits of nature, and I leave to you those of fortune." The conqueror was so affected with the vigour and elevation of his soul, as to declare, that "if he was not Alexander, he would choose to be Diogenes:" that is, if he was not in possession of all that was pompous and splendid in life, he would, like Diogenes, heroically despise it. Diogenes had great presence of mind, as appears from his smart sayings and quick repartees; and Plato seems to have hit off his true character when he called him a Socrates run mad. He spent a great part of his life at Corinth, and the reason of his living there was as follows: as he was going over to the island of Ægina, he was taken by pirates, who carried him into Crete, and there exposed him to sale. He answered the crier who asked him what he could do, that "he knew how to command men:" and perceiving a Corinthian who was going by, he showed him to the crier, and said "Sell me to that gentleman, for he wants a master." Xenocrates, for that was the Corinthian's name, bought Diogenes, and carried him with him to Corinth. He appointed him tutor to his children, and intrusted him also with the management of his house. Diogenes's friends being desirous to redeem him, "You are fools (said he); the lions are not the slaves of those who feed them, but they are the servants of the lions." He therefore

Diogenes. therefore plainly told Xenias, that he ought to obey him, as people obey their governors and physicians. Some say, that Diogenes spent the remainder of his life in Xenias's family; but Dion Chrysostom asserts that he passed the winter at Athens, and the summer at Corinth. He died at Corinth when he was about 90 years old: but authors are not agreed either as to the time or manner of his death. The following account, Jerome says, is the true one. As he was going to the Olympic games, a fever seized him in the way; upon which he lay down under a tree, and refused the assistance of those who accompanied him, and who offered him either a horse or a chariot. "Go you to the games (says he), and leave me to contend with my illness. If I conquer, I will follow you; if I am conquered, I shall go to the shades below." He despatched himself that very night; saying, that "he did not so properly die, as get rid of his fever." He had for his disciples Onesicritus, Phocion, Stilpo of Megara, and several other great men. His works are lost.

Diogenes Laertius, so called from Laerta in Cilicia where he was born, an ancient Greek author, who wrote ten books of the Lives of the Philosophers, still extant. In what age he flourished, is not easy to determine. The oldest writers who mention him are Soter Alexandrinus, who lived in the time of Constantine the Great, and Hesy chius Milesius, who lived under Justinian. Diogenes often speaks in terms of approbation of Plutarch and Phavorinus; and therefore, as Plutarch lived under Trajan, and Phavorinus under Hadrian, it is certain that he could not flourish before the reigns of those emperors. Menage has fixed him to the time of Severus; that is, about the year of Christ 200. From certain expressions in him some have fancied him to have been a Christian; but, as Menage observes, the immoderate praises he bestows upon Epicurus will not suffer us to believe this, but incline us rather to suppose that he was an Epicurean. He divided his Lives into books, and inscribed them to a learned lady of the Platonic school, as he himself intimates in his life of Plato. Montaigne was so fond of this author, that instead of one Laertius he wishes we had a dozen; and Vossius says, that his work is as precious as gold. Without doubt we are greatly obliged to him for what we know of the ancient philosophers: and if he had been as exact in the writing part as he was judicious in the choice of his subject, we had been more obliged to him still. Bishop Burnet, in the preface to his Life of Sir Matthew Hale, speaks of him in the following proper manner: "There is no book the ancients have left us (says he), which might have informed us more than Diogenes Laertius's Lives of the Philosophers, if he had had the art of writing equal to that great subject which he undertook: for if he had given the world such an account of them as Gassendus has done of Peiresc, how great a stock of knowledge might we have had, which by his unskilfulness is in a great measure lost! since we must now depend only on him, because we have no other and better author who has written on that argument." There have been several editions of his Lives of the Philosophers; but the best is that printed in two volumes 4to, at Amsterdam, 1693. This contains the advantages of all the former, besides some peculiar to itself: the

Greek text and the Latin version corrected and amended by Meibomius; the entire notes of Henry Stephens, both the Casaubons and of Menage; 24 copperplates of philosophers elegantly engraved: to which is added The history of the Female Philosophers, written by Menage, and dedicated to Madame Dacier. Besides this, Laertius wrote a book of Epigrams upon illustrious Men, called Pammetrus, from its various kinds of metre; but this is not extant.

DIOMEDIA, a genus of birds belonging to the order of anseres. See **ORNITHOLOGY Index**.

DIOMEDES, son of Tydus and Deiphyle, was king of Aetolia, and one of the bravest of the Grecian chiefs in the Trojan war. He often engaged Hector and Aeneas, and obtained much military glory. He went with Ulysses to steal the Palladium from the temple of Minerva in Troy; and assisted in murdering Rheus king of Thrace, and carrying away his horses. At his return from the siege of Troy, he lost his way in the darkness of night, and landed in Attica, where his companions plundered the country, and lost the Trojan Palladium. During his long absence, his wife Aegiale forgot her marriage vows, and prostituted herself to Cometes one of her servants. This lasciviousness of the queen was attributed by some to the resentment of Venus, whom Diomedes had severely wounded in a battle before Troy. The infidelity of Aegiale was highly displeasing to Diomedes. He resolved to abandon his native country which was the seat of his disgrace; and the attempts of his wife to take away his life, according to some accounts, did not a little contribute to hasten his departure. He came to that part of Italy, which has been called *Magna Graecia*, where he built a city, which he called *Argyrippa*, and married the daughter of Daunus the king of the country. He died there in extreme old age; or according to a certain tradition, he perished by the hand of his father-in-law. His death was greatly lamented by his companions, who in the excess of their grief were changed into birds resembling swans. These birds took flight into a neighbouring island in the Adriatic, and became remarkable for the tameness with which they approached the Greeks, and for the horror with which they shunned all other nations. They are called the birds of Diomedes. Altars were raised to Diomedes as to a god, one of which Strabo mentions at Timavus.

DION, a Syracusan, son of Hipparinus, famous for his power and abilities. He was related to Dionysius, and often advised him, together with the philosopher Plato, who at his request had come to reside at the tyrant's court, to lay aside the supreme power. His great popularity rendered him odious in the eyes of the tyrant, who banished him to Greece. There he collected a numerous force, and resolved to free his country from tyranny. This he easily effected on account of his uncommon popularity. He entered the port of Syracuse only in two ships; and in three days reduced under his power an empire which had already subsisted for 50 years, and which was guarded by 500 ships of war, and above 100,000 troops. The tyrant fled to Corinth, and Dion kept the power in his own hands, fearful of the aspiring ambition of some of the friends of Dionysius; but he was shamefully betrayed

Dion
||
Dionysiac.
era.

and murdered by one of his familiar friends called *Calliocrates* or *Callipus*, 354 years before the Christian

era. given to plays and all manner of sports acted on the stage; because playhouses were dedicated to Dionysius, i. e. Bacchus, and Venus, as being the deities of sports and pleasure.

Dionysian
||
Diophantine.

DION Cassius, a native of Nicæa in Bithynia. His father's name was Apronianus. He was raised to the greatest offices of state in the Roman empire by Pertinax, and his three successors. He was naturally fond of study, and he improved himself by unwearied application. He was ten years in collecting materials for a history of Rome, which he made public in 80 books, after a laborious employment of 12 years in composing it. This valuable history began with the arrival of Æneas in Italy, down to the reign of the emperor Alexander Severus. The 34 first books are totally lost, the 20 following, that is, from the 35th to the 54th, remain entire, the six following are mutilated, and fragments is all that we possess of the last 20. In the compilation of this extensive history, Dion proposed to himself Thucydides for a model, but he is not perfectly happy in his imitation. His style is pure and elegant, and his narrations are judiciously managed, and his reflections learned; but upon the whole, he is credulous, and the bigotted slave of partiality, satire, and flattery. He inveighs against the republican principles of Brutus and Cicero, and extols the cause of Cæsar. Seneca is the object of his satire, and he represents him as debauched and licentious in his morals.

DIONIS, PETER, a distinguished French surgeon, was born in Paris. In the time of Louis XIV. he was appointed anatomical and chirurgical demonstrator in the royal garden, and he was the first who held that place. He was surgeon in ordinary to Maria Theresa of Austria, queen of France, and to two dauphinesses and the royal children. He was the author of several works, both on anatomical and surgical subjects. One of the first of his publications, is entitled *Anatomie de l'Homme, suivant la Circulation du Sang*, 8vo, which appeared in 1690, and has been frequently reprinted, and translated into different languages. It was translated into the Tartarian dialect by a Jesuit for the use of the emperor of China. This work has been considered as a useful compendium of anatomy. In another work which he published in 1698, entitled, *Dissertation Historique et Physique sur la Generation de l'Homme*, he supports the ovarian hypothesis. In 1707 he published a work on surgery, entitled *Cours d'Operations de Chirurgie*, 8vo, which was several times reprinted; and latterly it was edited with notes by La Faye in 2 vols. This treatise was long received as a standard book on the subject. It contains many useful and pertinent observations detailed in plain, unaffected language. Dionis is the author of two other works; the first, *Sur la Mort subite, et sur la Galepsie*, published in 1709, and the other *Traité generale des Accouchemens*, in 1718. But the last is little else than an abridgement of Mauriceau's work on the same subject. Dionis died at Paris in 1718.

DIONÆA, VENUS'S FLY-TRAP, a genus of plants belonging to the decandria class. See *BOTANY Index*.

DIONYSIA, in Grecian antiquity, solemnities in honour of Bacchus, sometimes called by the general name of *Orgia*; and by the Romans *Bacchanalia*, and *Liberalia*. See *BACCHANALIA* and *BACCHUS*.

DIONYSIACA, in antiquity, was a designation

DIONYSIAN PERIOD. See *CHRONOLOGY*, N^o 31.

DIONYSIUS I. from a private secretary became general and tyrant of Syracuse and all Sicily. He was likewise a poet; and having, by bribes, gained the tragedy prize at Athens, he indulged himself so immoderately at table from excess of joy, that he died of the debauch, 386 B. C. but some authors relate that he was poisoned by his physicians.

DIONYSIUS II. (his son and successor) was a greater tyrant than his father; his subjects were obliged to apply to the Corinthians for succour; and Timoleon their general having conquered the tyrant, he fled to Athens, where he was obliged to keep a school for subsistence. He died 343 B. C.

DIONYSIUS Halicarnassensis, a celebrated historian, and one of the most judicious critics of antiquity, was born at Halicarnassus; and went to Rome after the battle of Actium, where he staid 22 years under the reign of Augustus. He there composed in Greek his History of the Roman Antiquities, in 20 books, of which the first 11 only are now remaining. There are also still extant several of his critical works. The best edition of the works of this author is that of Oxford, in 1704, in Greek and Latin, by Dr Hudson.

DIONYSIUS, a learned geographer, to whom is attributed a *Periegesis*, or Survey of the Earth, in Greek verse. Some suppose that he lived in the time of Augustus; but Scaliger and Saumaisius place him under the reign of Severus, or Marcus Aurelius. He wrote many other works, but his *Periegesis* is the only one we have remaining; the best and most useful edition of which is that improved with notes and illustrations by Hill.

DIONYSIUS Areopagita, was born at Athens, and educated there. He went afterwards to Heliopolis in Egypt; where, if we may believe some writers of his life, he saw that wonderful eclipse which happened at our Saviour's passion, and was urged by some extraordinary impulse to cry out, *Aut Deus patitur, aut cum patiente dolet*; "either God himself suffers, or condoles with him who does." At his return to Athens he was elected into the court of Areopagus, from whence he derived his name of *Areopagite*. About the year 50 he embraced Christianity; and, as some say, was appointed first bishop of Athens by St Paul. Of his conversion we have an account in the 17th chapter of the Acts of the Apostles.—He is supposed to have suffered martyrdom; but whether under Domitian, Trajan, or Adrian, is not certain. We have nothing remaining under his name, but what there is the greatest reason to believe spurious.

DIONYSIUS the Lesser, a Scythian, became abbot of a monastery at Rome; he was the first who computed time from the birth of Dionysius to Christ, and fixed that great event, according to the vulgar era. He was also a learned canon law writer, and died about the year 540.

DIOPHANTINE PROBLEMS, in *Mathematics*, certain questions relating to square and cube numbers, and right-angled triangles, &c. the nature of which

was

Diophantus. was determined by Diophantus, a mathematician of Alexandria, who is believed to have lived about the third century. We have his works, which were published with notes at Paris, in 1621, by Bachet de Meziriac; and another edition in 1670, with observations on every question by M. Fermat.

In these questions it is endeavoured to find commensurable numbers to answer indeterminate problems; which bring out an infinite number of incommensurable quantities. For examples, it is proposed to find a right-angled triangle, whose sides, x, y, z , are expressed by commensurable numbers; it is known that $x^2 + y^2 = z^2$, z being the supposed hypotenuse. But it is possible to assume x and y so, that z will be incommensurable; for if $x=1$, and $y=2$, $z=\sqrt{5}$.

The art of resolving such problems consists in so managing the unknown quantity or quantities in such a manner, that the square or higher power may vanish out of the equation, and then by means of the unknown quantity in its first dimension, the equation may be resolved without having recourse to incommensurables; e. gr. let it be supposed to find x, y, z , the sides of a right-angled triangle, such as will give $x^2 + y^2 = z^2$. Suppose $z=x+u$, then $x^2 + y^2 = x^2 + 2xu + u^2$; out of which equation x^2 vanishes, and $x = \frac{y^2 - u^2}{2u}$: then assuming y and u equal to any numbers at pleasure, the sides of the triangle will be $y, \frac{y^2 \times u^2}{2u}$, and the hypotenuse $x+u = \frac{y^2 + u^2}{2u}$; if $y=3$, and $u=1$, then $\frac{y^2 - u^2}{2u} = 4$,

and $x+u=5$. It is evident that this problem admits of an infinite number of solutions.

For the resolution of such kind of problems, see Saunderson's Algebra, vol. ii. book 6.

DIOPHANTUS, a celebrated mathematician of Alexandria, has been reputed to be the inventor of algebra; at least his is the earliest work extant on that science. It is not certain when Diophantus lived. Some have placed him before Christ, and some after, in the reigns of Nero and the Antonines: but all with equal uncertainty. It seems he is the same Diophantus who wrote the Canon Astronomicus, which Suidas says was commented on by the celebrated Hypatia, daughter of Theon of Alexandria. His reputation must have been very high among the ancients, since they ranked him with Pythagoras and Euclid in mathematical learning. Bachet, in his notes upon the 5th book *De Arithmetica*, has collected, from Diophantus's epitaph in the Anthologia, the following circumstances of his life; namely, that he was married when he was 33 years old, and had a son born five years after; that this son died when he was 42 years of age, and that his father did not survive him above four years; from which it appears, that Diophantus was 84 years old when he died.

DIOPTRER, or **DIOPTRA**, the same with the index or alidade of an astrolabe, or other such instrument.

DIOPTRA was an instrument invented by Hipparchus, which served for several uses; as, to level water-courses; to take the height of towers, or places at a distance; to determine the places, magnitudes, and distances of the planets, &c.

Diophantus, Dioptra.

D I O P T R I C S,

THAT part of OPTICS which treats of the laws of refraction, and the effects which the refraction of light has in vision. The word is originally Greek, formed of *δια*, *per*, "through," and *ὀπτική*, *I see*.

As this and the other branches of OPTICS are fully treated under the collective name, we shall here, 1. Just give a summary of the general principles of the branch, in a few plain aphorisms, with some preliminary definitions; and, 2. Present our readers with a set of entertaining experiments illustrative of, or dependent upon, those principles.

DEFINITIONS.

1. When a ray of light passing out of one medium into another of a different density, is turned from that straight line in which it would otherwise proceed into one of a different direction, it is said to be refracted. Thus the rays AB, AC, &c. (fig. 1.) by passing out of air into the glass BGC, are turned from their natural course into that of BF, CF, &c. and are therefore said to be refracted by the lens BGC.

2. Any spherical transparent glass, that converges or diverges the rays of light as they pass through it, is called a *lens*.

3. Of lenses there are five sorts: 1. A plane or single convex lens, which is plane on one side and con-

vex on the other; as AZ, fig. 3. 2. A double convex lens, as B. 3. A plano-concave lens, that is, plane on one side and concave on the other, as C. 4. A double concave, as D. And, 5. A meniscus, which is convex on one side and concave on the other, as E.

4. The point C, (fig. 2.) round which the spherical surface of a lens, as AZ, is described, is called its *centre*; the line XY, drawn from that centre perpendicular to its two surfaces, is the *axis*; and the point V, to which the axis is drawn, is the *vertex* of that lens.

5. When the rays of light that pass through a single or double convex lens are brought into their smallest compass, that point is the *focus* of the lens.

6. In optical instruments, that lens which is next the object is called the *object glass*; and that next the eye, the *eye glass*.

7. The distance between the line AB, (fig. 3.) and the perpendicular EF, is called the *angle of incidence*; and the distance between the line BD and the perpendicular EF, is called the *angle of refraction*.

APHORISMS.

1. A ray of light passing obliquely out of one medium into another that is denser, will be refracted toward the perpendicular; as the ray AB, by passing out of air into glass, is refracted into BF, inclined

to the perpendicular AF. On the contrary, a ray passing out of a denser into a rarer medium; will be refracted from the perpendicular; as the ray BC, passing out of the glass GH into air, is refracted into DI.

2. The sines of the angles of incidence and refraction, when the lines that contain them are all equal, will have a determinate proportion to each other, in the same mediums; which between air and water will be as 4 to 3; between air and glass, as 3 to 2, nearly; and in other mediums in proportion to their densities.

3. Any object viewed through a glass, whose two surfaces are parallel, will appear of its natural shape and dimensions, provided it be only of the size of the pupil of the eye, and the light proceeding from it be received directly through the glass by one eye only. In all other situations an alteration will be perceived not only in its apparent situation, but its dimensions also. This alteration will be greater in proportion to the thickness of the glass, and the obliquity of the rays; in general, it is so small as to be overlooked.

4. All the rays of light which fall upon a convex lens, whether parallel, converging, or diverging to a certain degree, will be made to meet in a focus on the other side; but if they diverge excessively, they will not do so. Thus if rays diverge from a point placed before the glass, at the focal distance from it, they will become parallel after passing through it; and if the point from which they proceed be nearer the glass than its focal distance, they will still continue to diverge, though in a less degree than before.

5. When parallel rays fall upon a concave lens, they will be made to diverge after passing through it. If they are diverging already before they fall upon the glass, they will diverge more after passing through it; or even if they are converging to a certain degree, they will diverge upon passing through a concave lens; but if the convergence is very great, they will converge after passing through the glass, though to a more distant point than that at which they would otherwise have met.

6. When an object is viewed through two convex lenses, its apparent diameter ought to be to its real one as the distance of the focus of the object glass is to that of the eye glass; but by the reason of the aberration of the rays of light, the magnifying power will be somewhat greater or less in proportion to the diameter of the object.

By these aphorisms we are enabled to account for the various effects of dioptric machines, as refracting telescopes, microscopes, the camera obscura, &c. See OPTICS.

ENTERTAINING EXPERIMENTS.

I. *Optical Illusions.*

On the bottom of the vessel ABCD, (fig. 4.) place three pieces of money, as a shilling, a half crown, and crown; the first at E, the second at F, and the last at G. Then place a person at H, where he can see no further into the vessel than I: and tell him, that by pouring water into the vessel you will make him see

three different pieces of money; bidding him observe carefully whether any money goes in with the water.

Here you must observe to pour in the water very gently, or contrive to fix the pieces, that they may not move out of their places by its agitation.

When the water comes up to K, the piece at E will become visible; when it comes up to L, the pieces at E and F will appear; and when it rises to M, all the three pieces will be visible.

From what has been said of the refraction of light, the cause of this phenomenon will be evident: for while the vessel is empty, the ray HI will naturally proceed in a straight line: but in proportion as it becomes immersed in water, it will be necessarily refracted into the several directions NE, OF, PG, and consequently the several pieces must become visible.

II. *Optical Augmentation.*

Take a large drinking glass of a conical figure, that is small at bottom and wide at top; in which put a shilling, and fill the glass about half full with water: then place a plate on the top of it, and turn it quickly over, that the water may not get out. You will then see on the plate, a piece of the size of a half crown; and somewhat higher up, another piece of the size of a shilling.

This phenomenon arises from seeing the piece through the conical surface of the water at the side of the glass, and through the flat surface at the top of the water, at the same time: for the conical surface dilates the rays, and makes the piece appear larger; but by the flat surface the rays are only refracted, by which the piece is seen higher up in the glass, but still of its natural size. That this is the cause will be further evident by filling the glass with water; for as the shilling cannot be then seen from the top, the large piece only will be visible.

III. *Optical Subtraction.*

Against the wainscot of a room fix three small pieces of paper, as A, B, C, (fig. 5.) at the height of your eye; and placing yourself directly before them, shut your right eye and look at them with the left; when you will see only two of those papers, suppose A and B; but altering the position of your eye, you will then see the third and one of the first, suppose A; and by altering your position a second time, you will see B and C; but never all three of them together.

The cause of this phenomenon is, that one of the three pencils of rays that come from these objects, falls constantly on the optic nerve at D; whereas to produce distinct vision, it is necessary that the rays of light fall on some part of the retina E, F, G, H. We see by this experiment, one of the uses of having two eyes; for he that has one only, can never see three objects placed in this position, nor all the parts of one object of the same extent, without altering the situation of his eye.

IV. *Alternate Illusion.*

With a convex lens of about an inch focus, look attentively at a silver seal, on which a cipher is engraved.

graved. It will at first appear cut in, as to the naked eye; but if you continue to observe it some time, without changing your situation, it will seem to be in relief, and the lights and shades will appear the same as they did before. If you regard it with the same attention still longer, it will again appear to be engraved: and so on alternately.

If you look off the seal for a few moments, when you view it again, instead of seeing it, as at first, engraved, it will appear in relief. If, while you are turned toward the light, you suddenly incline the seal, while you continue to regard it, those parts that seemed to be engraved will immediately appear in relief; and if, when you are regarding these seeming prominent parts, you turn yourself so that the light may fall on the right hand, you will see the shadows on the same side from whence the light comes, which will appear not a little extraordinary. In like manner the shadows will appear on the left, if the light fall on that side. If, instead of a seal, you look at a piece of money these alterations will not be visible, in whatever situation you place yourself.

It has been suspected that this allusion arises from the situation of the light: and in fact, "I have observed (says M. Guyot, from whom this article is taken), that when I have viewed it with a candle on the right, it has appeared engraved; but by changing the light to the left side, it has immediately appeared in relief." It still, however, remains to be explained, why we see it alternately hollow and prominent, without either changing the situation or the light. Perhaps it is in the sight itself that we must look for the cause of this phenomenon; and this seems the more probable, as all these appearances are not discernible by all persons.

Mr William Jones of Holborn, has remarked to us, that this illusion is still more extraordinary and permanent, when you look at a cavity in a seal or other object through the three eye glasses of a common four glass refracting telescope: all cavities viewed through these glasses appear constantly reliefs, in almost all situations of the light you see them with.

V. *The Dioptrical Paradox.*

A new and curious optical, or what may be called properly a *dioptrical*, deception, has been made by Mr W. Jones. Its effect is, that a print, or an ornamented drawing, with any object, such as an *ace of diamonds*, &c. in the centre F, (fig. 6.) will be seen as the *ace of clubs* when it is placed in the machine ABDC, and viewed through a single glass only contained in the tube E. The construction of this machine is truly simple.

The glass in the tube F, which brings about this surprising change, is somewhat on the principle of the common multiplying glass, as represented at G, which by the number of its inclined surfaces, and from the refractive power of the rays proceeding from the objects placed before it, shows it in a multiplied state or quantity. Its only difference is, that the sides of this glass are flat, and diverge upwards from the base to a point in the axis of the glass like a cone: the number of the sides is six; and each side, from its angular position to the eye, has the property of refracting from the border of the print F such a portion of it (designedly there placed), as will make a part in the composition of the figure to be represented: for the hexagonal and conical figure of this glass prevents any sight of the ace of diamonds in the centre being seen; consequently the ace of clubs being previously and mechanically drawn in the circle of refraction in six different parts of the border, at 1, 2, 3, 4, 5, 6, and artfully disguised in the ornamental border by blending them with it, the glass in the tube at E will change the appearance of the ace of diamonds F into the ace of clubs G. In the same manner many other prints undergo similar changes, according to the will of an ingenious draughtsman who may design them. The figure of the glass is clearly shown at H.

VI. *The Camera Obscura, or Dark Chamber.*

Make a circular hole in the shutter of a window, from whence there is a prospect of the fields, or any other object not too near; and in this hole place a convex glass, either double or single, whose focus is at the distance of five or six feet (A). Take care that no light enter the room but by this glass: at a distance from it, equal to that of its focus, place a pasteboard, covered with the whitest paper; which should have a black border, to prevent any of the side rays from disturbing the picture. Let it be two feet and a half long, and 18 or 20 inches high: bend the length of it inwards, to the form of part of a circle, whose diameter is equal to double the focal distance of the glass. Then fix it on a frame of the same figure, and put it on a moveable foot, that it may be easily fixed at that exact distance from the glass where the objects paint themselves to the greatest perfection. When it is thus placed, all the objects that are in the front of the window will be painted on the paper, in an inverted position (B), with the greatest regularity and in the most natural colours.

If you place a moveable mirror without the window; by turning it more or less, you will have on the paper

(A) The distance should not be less than three feet; for if it be, the images will be too small, and there will not be sufficient room for the spectators to stand conveniently. On the other hand, the focus should never be more than 15 or 20 feet, for then the images will be obscure, and the colouring faint. The best distance is from 6 to 12 feet.

(B) This inverted position of the images may be deemed an imperfection, but is easily remedied: for if you stand above the board on which they are received, and look down on it, they will appear in their natural position: or if you stand before it, and, placing a common mirror against your breast in an oblique direction, look down in it, you will there see the images erect, and they will receive an additional lustre from the reflection of the glass; or place two lenses, in a tube that draws out; or, lastly, if you place a large concave mirror at a proper distance before the picture, it will appear before the mirror, in the air, and in an erect position.

paper all the objects that are on each side of the window (c).

If instead of placing the mirror without the window you place it in the room, and above the hole (which must then be made near the top of the shutter), you may receive the representation on a paper placed horizontally on a table; and draw, at your leisure, all the objects that are there painted.

Nothing can be more pleasing than this experiment, especially when the objects are strongly enlightened by the sun: and not only land prospects, but a sea-port, when the water is somewhat agitated, or at the setting of the sun, presents a very delightful appearance.

This representation affords the most perfect model for painters, as well for the tone of colours, as that degradation of shades, occasioned by the interposition of the air, which has been so justly expressed by some modern painters.

It is necessary that the paper have a circular form; for, otherwise, when the centre of it was in the focus of the glass, the two sides would be beyond it, and consequently the images would be confused. If the frame were contrived of a spherical figure, and the glass were in its centre, the representation would be still more accurate. If the object without be at the distance of twice the focal length of the glass, the image in the room will be of the same magnitude with the object.

The lights, shades, and colours, in the camera obscura, appear not only just, but, by the images being reduced to a smaller compass, much stronger than in nature. Add to this, that these pictures exceed all others, by representing the motion of the several objects; thus we see the animals walk, run, or fly; the clouds float in the air; the leaves quiver; the waves roll, &c.; and all in strict conformity to the laws of nature. The best situation for a dark chamber is directly north, and the best time of the day is noon.

VII. *To show the Spots on the Sun's Disk, by its image in the Camera Obscura.*

Put the object glass of a 10 or 12 feet telescope into the scioptic ball, and turn it about till it be directly opposite to the sun (D). Then place the pasteboard, mentioned in the last experiment, in the focus of the lens; and you will see a clear bright image of the sun, of about an inch in diameter, in which the spots on the sun's surface will be exactly described.

As this image is too bright to be seen with pleasure by the naked eye, you may view it through a lens whose focus is at six or eight inches distance; which at the same time that it prevents the light from being offensive, will, by magnifying both the image and the spots, make them appear to greater advantage.

VIII. *To magnify small Objects by means of the Sun's Rays let into a Dark Chamber.*

Let the rays of light that pass through the lens in the shutter be thrown on a large concave mirror, properly fixed in a frame. Then take a slip or thin plate of glass; and sticking any small object on it, hold it in the incident rays, at a little more than the focal distance from the mirror; and you will see, on the opposite wall, amidst the reflected rays, the image of that object, very large, and extremely clear and bright. This experiment never fails to give the spectator the highest satisfaction.

IX. *The Portable Camera Obscura.*

The great pleasure produced by the camera obscura in the common form, has excited several to render it more universally useful by making it portable, easily fixed on any spot, and adapted to every prospect. We shall not here examine the merits of the various sorts that have been invented; but content ourselves with describing two of late improved constructions, as made and sold by the opticians of the present time, and that appear in their construction the most convenient and advantageous of any yet contrived.

The pocket or portable camera obscura, with a drawer to draw out in the front, is represented in fig. 7. The images of the objects before the instrument are reflected upon a glass ground rough on its upper side, and that is placed at top of the hinder part of the box, under the moveable cover represented in the figure. The images represented thereon will afford a most beautiful and perfect piece of perspective or landscape of whatever is before the camera, and more particularly so if the sun shines upon the objects. The outlines of them may easily be traced on the glass by a black lead pencil. There is sometimes a scale of proportions placed in the upper surface of the drawer, by which any particular building or other object may be drawn in a given proportion or magnitude, and according to the figures inserted on the scale, which are adapted to the focus or foci of the lenses made use of in the camera. The glasses that are made use of in this camera are only three, and are represented in fig. 8. The convex glass A is placed in the front of the drawer of the camera, and is of a focus agreeable to the length of the box. The mirror CE reclines in the box in an angle of 45 degrees from a perpendicular situation. The rays flowing from the object F through the convex glass A to the plane mirror CE will be reflected from it, and meet in points on the glass placed horizontally in the direction CD, and will form thereon the afore-mentioned images. If on this glass an oiled paper or any other transparent substance be placed, the images

(c) There is another method of making the dark chamber; which is by a scioptic ball, that is, a ball of wood, through which a hole is made, in which hole a lens is fixed: this ball is placed in a wooden frame, in which it turns freely round. The frame is fixed to the hole in the shutter; and the ball, by turning about, answers, in great part, the use of the mirror on the outside of the window. If the hole in the window be no bigger than a pea, the object will be represented without any lens, though by no means so distinctly, or with such vivid colours.

(D) When the sun is directly opposite to the hole, the lens will itself be sufficient: or by means of the mirror on the outside of the window, as in Experiment VI. the lens will answer the purpose at any time.

images will be clearly represented, and sufficiently so to delineate them by a black lead pencil or crayon. Instead of the glass CD, or sometimes underneath it, is often placed a double convex lens of a focus somewhat shorter than the length of the box: this alteration considerably brightens the appearance of the images, and renders them as vivid as the objects themselves, though not quite so accurate in their contours or outlines as by the preceding method.

Another kind of portable camera obscura is, where the images are formed upon white paper, and the several parts of the camera fold up out of a box shaped like a book or chest. This way of the images being formed on paper is a much preferable one to the preceding method, and admits of their being traced on the paper with the utmost readiness. This instrument, as open out of its case and ready for use, is represented in fig. 9. The front and sides fold up to the height of about two feet from the case EFG, by means of hinges placed at PH, &c. The head of ABCD, about five inches square and high, containing the mirror L and the convex lens beneath it, fits on at CD, and the inner square tube of it is moved up and down by rack-work and a pinion NM. This motion serves to adjust the convex lens *d* to its proper focal distance from the white paper placed within side at the bottom of the box EFG, so that the images may be formed with the greatest possible distinctness. In tracing these images the face is applied close to the hole in the front at K, and the hand in the sleeve in the front at the bottom of FG. When the sides and front are unhooked and folded down, they all lie close in the box EFG, and the lid O folds down as a top on them close, and the box remains then the size of a common folio book, and is covered with calf leather and lettered on the back in perfect imitation of one.

By the diagonal position of a plane mirror the curious opera glass is constructed, by which any person may be viewed in a theatre or public company, and yet know nothing of it. It consists only in placing a concave glass near the plane mirror, in the end of a short round tube, and a convex glass in a hole in the side of the tube. Then holding the end of the tube with the glass to the eye, all objects next to the hole in the side will be reflected so as to appear in a direct line forward, or in a position at right angles to the person's situation who is looked at. Plane glasses instead of a concave and convex may be used; but in this case there will be no magnitude of the object, but it will appear brighter. It is called by opticians the *diagonal opera glass*.

X. *The Magic Lantern.*

This very remarkable machine, which is now known over all the world, caused great astonishment at its origin. It is still beheld with pleasing admiration; and the spectator very frequently contents himself with wondering at its effects, without endeavouring to investigate their cause. The invention of this ingenious illusion is attributed to the celebrated P. Kircher, who has published on various sciences, works equally learned, curious, and entertaining. Its design is to represent at large, on a cloth or board, placed in the dark, the images of small objects, painted with transparent colours on plates of glass.

The construction is as follows: Let ABCD (fig. 10.) be the side of a tin box, eight inches high, eight inches long, and ten broad (or any other similar dimensions), the top of which must have a funnel, with a cover, as represented in fig. 11.; which at the same time it gives a passage to the smoke, prevents the light from coming out of the box. In the middle of the bottom of the box must be placed a low tin lamp E, which is to be moveable. It should have three or four lights, that must be at the height of the centre of the glasses in the tubes N and O. In the largest of these tubes must be placed a glass semiglobular lens N, about four inches diameter; and in the smaller one a double convex lens o, about $2\frac{1}{4}$ inches diameter, and six inches focus, the length of the tubes holding them about $4\frac{1}{2}$ inches each; the inner tube containing the small lens o must be a sliding one, in order to adjust it at a proper distance from the painted sliders, so that the objects thereon may be distinctly represented on the cloth or white wall. A slit or opening between the glass N and the front side BGDH of the box must be made large enough to admit the sliders to be passed through, (as in fig. 11.) The clearness of the light, and the objects upon the cloth will depend much upon the light of the lamp; it will therefore be proved best, to place, instead of the common lamp E, a kind of the new or Argand's patent lamp, which will be found considerably to improve the effect of the lantern by its superior strength of light.

From the construction of this lantern it is evident that when the glass sliders, with the painted figures, are placed in the groove or slit in the lantern for that purpose, and the room darkened, a quantity of light from the lamp at E will be collected by the lens N, and refracted upon the cloth placed opposite, and that by moving the sliding tube containing the small lens o gradually in or out as occasion may require, this lens will form images of the figures on the sliders in their distinct colours and proportions, with the appearance of life itself, and of any size from six inches to seven feet, according to the distance of the lantern from the cloth. The lantern, with one of the sliders ready for use, is clearly represented in fig. 11. By the aid of the new patent lamp aforementioned, considerable useful improvements are made to the lantern. Mr Jones, optician, of Holborn, has contrived an apparatus to be applied to it, that converts it into a microscope by night; and it shows all the variety of transparent and many of the opaque objects magnified upon a cloth or screen opposite, similar to the figures above mentioned, but not in so large a degree; about one or two feet diameter is the utmost that can at present be obtained.

Method of painting the Glasses for the Lantern. Draw on a paper the subject you desire to paint, and fix it at each end to the glass. Provide a varnish with which you have mixed some black paint; and with a fine pencil draw on the other side of the glass, with very light touches, the design drawn on the paper. If you are desirous of making the painting as perfect as possible, you should draw some of the outlines in their proper colours, provided they are the strongest tints of these colours that are used. When the outlines are dry, you colour the figures with their proper tints or degradations.

degradations. Transparent colours are most proper for this purpose, such as carmine, lake, Prussian blue, verdigrise, &c. and these must be tempered with a strong white varnish, to prevent their peeling off. You are then to shade them with black mixed with the same varnish, or with bistre, as you find convenient. You may also leave strong lights in some parts, without any colours, in order to produce a more striking effect. Observe, in particular, not to use more than four or five colours, such as blue, red, green, and yellow. You should employ, however, a great variety of tints, to give your painting a more natural air; without which they will represent vulgar objects, which are by no means the more pleasing because they are gawdy.

When the lamp in this lantern is lighted, and, by drawing out the tube to a proper length, the figures painted on the glass appear bright and well defined, the spectator cannot fail of being highly entertained by the succession of natural or grotesque figures that are painted on the glasses. This piece of optics may be rendered much more amusing, and at the same time more marvellous, by preparing figures to which different natural motions may be given (E), which every one may perform according to his own taste; either by movements in the figures themselves, or by painting the subject on two glasses, and passing them at the same time through the groove, as will be seen in the next experiment.

XI. To represent a Tempest by the Magic Lantern.

Provide two plates of glass, whose frames are so thin that they may both pass freely through the slit or groove of the common magic lanterns at the same time.

On one of these glasses you are to paint the appearance of the sea, from the slightest agitation to the most violent commotion. Representing from A to B (fig. 12.) a calm; from B to C a small agitation, with some clouds; and so on to F and G, which should exhibit a furious storm. Observe, that these representations are not to be distinct, but run into each other, that they may form a natural gradation; remember also, that great part of the effect depends on the perfection of the painting, and the picturesque appearance of the design.

On the other glass you are to paint vessels of different forms and dimensions, and in different directions, together with the appearance of clouds in the tempestuous parts.

You are then to pass the glass slowly through the groove; and when you come to that part where the storm begins, you are to move the glass gently up and down, which will give it the appearance of a sea that begins to be agitated; and so increase the motion till you come to the height of the storm. At the same time you are to introduce the other glass with the ships, and moving that in like manner, you will have a natural representation of the sea, and of ships in a calm and in a storm. As you draw the glasses slowly back,

the tempest will seem to subside, the sky grow clear, and the ships glide gently over the waves.—By means of two glasses disposed in this manner you may likewise represent a battle, or sea fight. and numberless other subjects, that every one will contrive according to his own taste. They may also be made to represent some remarkable or ludicrous action between different persons, and many other amusements that a lively imagination will easily suggest.

XII. The Nebulous Magic Lantern.

The light of the magic lantern, and the colour of images, may not only be painted on a cloth, but also reflected by a cloud of smoke.

Provide a box of wood or pasteboard (fig. 14.) of about four feet high, and of seven or eight inches square at bottom, but diminishing as it ascends, so that its aperture at top is but six inches long, and half an inch wide. At the bottom of this box there must be a door that shuts quite close, by which you are to place in the box a chafing-dish with hot coals, on which is to be thrown incense, whose smoke goes out in a cloud at the top of the box. It is on this cloud that you are to throw the light that comes out of the lantern, and which you bring into a smaller compass by drawing out the moveable tube. The common figures will here serve. It is remarkable in this representation, that the motion of the smoke does not at all change the figures; which appear so conspicuous, that the spectator thinks he can grasp them with his hand.

Note. In this experiment some of the rays passing through the smoke, the representation will be much less vivid than on the cloth; and if care be not taken to reduce the light to its smallest focus, it will be still more imperfect.

XIII. To produce the Appearance of a Phantom upon a Pedestal placed on the middle of a Table.

Enclose a common small magic lantern in a box ABCD (fig. 15.) that is large enough to contain also an inclined mirror M, which must be moveable, that it may reflect the cone of light thrown on it by the lantern, in such a manner that it may pass out at the aperture made in the top of the box. There should be a flap with hinges to cover the opening, that the inside of the box may not be seen when the experiment is making. This aperture should likewise be oval, and of a size adapted to the cone of light that is to pass through it. There must be holes made in that part of the box which is over the lantern, to let out the smoke: and over that part must be placed a chafing dish of an oblong figure, and large enough to hold several lighted coals. This chafing dish may be enclosed in a painted tin box of about a foot high, and with an aperture at top something like fig. 14. It should stand on four short feet, to give room for the smoke of the lamp to pass out. There must also be a glass that will ascend and descend at pleasure in a vertical groove *ab*. To this glass let there be fixed a cord, that, going over a pulley *c*, passes out of the box at the side CD, by which the

(E) There are in the Philosophical Essays of M. Muschenbroek, different methods of performing all these various movements, by some mechanical contrivances that are not difficult to execute.

the glass may be drawn up, and will descend by its own weight. On this glass may be painted a spectre, or any other more pleasing figure. Observe, that the figures must be contracted in drawing, as the cloud of smoke does not cut the cone of light at right angles, and therefore the figures will appear longer than they do on the glass.

After you have lighted the lamp in the lantern, and put the mirror in a proper direction, you place the box or pedestal ABCD on a table; and putting the chafing dish in it, throw some incense in powder on the coals. You then open a trap door, and let down the glass slowly; and when you perceive the smoke diminish, you draw up the glass, that the figure may disappear, and shut the trap-door. This appearance will occasion no small surprise, as the spectre will seem to rise gradually out of the pedestal, and on drawing up the glass will disappear in an instant. Observe, that when you exhibit this experiment, you must put out all the lights in the room; and the box should be placed on a high table, that the spectators may not perceive the aperture by which the light comes out. Though we have mentioned a small magic lantern, yet the whole apparatus may be so enlarged, that the phantom may appear of a formidable size.

XIV. *The Magic Theatre.*

By making some few additions to the magic lantern with the square tube, used in Experiment X. various scenes, characters, and decorations of a theatre, may be represented in a lively manner. In this experiment it is quite necessary to make the lantern much larger than common, that the objects painted on the glasses, being of a larger size, may be represented with greater precision, and consequently their several characters more strongly marked.

Let there be made a wooden box ABCD, a foot and a half long, 15 inches high, and 10 wide. Let it be placed on a stand EF, that must go round it, and by which it may be fixed with two screws to a table. Place over it a tin cover, as in the common lantern. Make an opening in its two narrowest sides; in one of which place the tube H, and in the other the tube I: let each of them be six inches wide, and five inches high: in each of these tubes place another that is moveable, in order to bring the glasses, or concave mirror, that are contained in them, to a proper distance. In the middle of the bottom of this box place a tin lamp M; which must be moveable in a groove, that it may be placed at a proper distance with regard to the glasses and mirror: this lamp should have five or six lights, each of them about an inch long. At the beginning of the tube H, toward the part N, make an opening of an inch wide, which must cross it laterally: another of three quarters of an inch, that must cross it vertically, and be nearer the box than the first; and a third of half an inch, that must be before the first. The opening made laterally must have three or four grooves, the second two, and the third one: that different subjects of figures and decorations may be

VOL. VII. Part I.

passed, either sidewise, ascending or descending, so that the scenes of a theatre may be the more exactly imitated (F). Enclose these grooves between two convex rectangular glasses, of six inches long, and five inches high, and of about 20 inches focus; one of which must be placed at O, and the other toward P. Have another tube Q, of about a foot long, which must enter that marked H; and at its outward extremity place a lens of about 15 inches focus. There must also be a third tube R, four inches long, into which that marked I is to enter: to the exterior end of this adjust a concave mirror, whose focus must be at seven or eight inches from its reflecting surface.

The magic lantern being thus adjusted, nothing more is necessary than to provide glasses, painted with such subjects as you would represent, according to the grooves they are to enter. The lamp is then to be lighted; and placing a glass in one of the grooves, you draw out the moveable tubes till the object paints itself on a cloth to the most advantage: by which you determine the distance of the lantern and the size of the image. You then make a hole in the partition of that size, and fix in it a plate of clear glass, over which you paste a very thin paper, which must be varnished, that it may be as transparent as possible.

On this paper are to be exhibited the images of all those objects, that by passing successively through the grooves, are to represent a theatric entertainment. The exhibition will be very agreeable; because the magic lantern being concealed behind the partition, the cause of the illusion cannot by any means be discovered.

In order to show more clearly in what manner a subject of this sort should be painted, and the glasses disposed, we will here make choice of the siege of Troy for a theatric subject; in which will be found all the incidents necessary to the exhibition of any other subject whatever.—In the first act the theatre may represent, on one side, the ramparts of Troy; toward the back part, the Grecian camp; and at a farther distance, the sea, and the isle of Tenedos. We will suppose the time to be that when the Greeks feigned to raise the siege; and embarked, leaving behind them the wooden horse, in which were contained the Grecian soldiers.—On a glass, therefore, of the same width with the aperture made in the side AC of the box, you are to paint a deep blue curtain, lightly charged with ornaments, quite transparent. This glass is to be placed in the first vertical groove; so that by letting it gently down, its image may appear to rise in the same manner as the curtain of a theatre. All the glasses that are to ascend or descend must be bordered with thin pieces of wood, and so exactly fill the grooves, that they may not slide down of themselves.—You must have several glasses of a proper size to pass through the horizontal grooves, and of different lengths according to the extent of the subject. You may paint on the first, the walls of Troy. On the second, the Grecian camp. On the third, the sea, the isle of Tenedos, and a serene sky. On the fourth, the Grecian

I i

troops

(F) In the decorations, the clouds and the palaces of the gods should descend; caves and infernal palaces should ascend; earthly palaces, gardens, &c. enter at the sides.

troops by detached figures. On the fifth, other troops, disposed in battalions, and placed at a distance. On the sixth, divers vessels, which as the glass advances in the groove diminish in size. On the seventh, the wooden horse and Sinon. On the eighth, Trojan men and women.

These glasses being properly painted, you place in the horizontal grooves the first, second, third, and fourth. Then draw up the curtain, by letting down the glass on which it is painted, and draw away gently the fourth glass, and after that the second; then advance very gently the fifth that represents the embarkment, and pass it quite through. Next pass, the opposite way, the sixth, which represents the Grecian fleet. The objects painted on the fourth, fifth, and sixth, quite disappearing, you are to advance the seventh, on which is painted the wooden horse; and at the same time the eighth, where the Trojans will appear to draw the horse into the city. The curtain is then to be let down, that you may withdraw the scenes of the first act, and place in the grooves those that are to compose the second.—In the second act may be represented the interior part of the city of Troy: on one side may be seen the wooden horse, and in the back part the temple of Pallas. The glasses for this act may be painted in the following manner. On the first may be palaces and houses, representing the inside of a city. On the second, the temple of Pallas in the centre, with a clear night and the moon. In the front may be seen the wooden horse, that the Trojans have placed near the temple of Pallas. On the third, a troop of Greeks, with Sinon at their head, who are going to open the gates of the city to the Grecians. On the fourth, different troops of armed Greeks; painted on a long glass, to afford variety. On the fifth, several troops of Trojans. On the sixth, various appearances of fire and smoke, so disposed, that this glass being drawn up above the others, the objects painted on the first glass may appear in a conflagration.

Before you draw up the curtain, you should place the first and second glasses. You then pass the whole third glass slowly; a little after, the fourth, on which are painted the different bodies of armed Greeks; and at the same time, from the opposite side, the sixth glass, that represents the Trojan troops; observing to move them slowly both in advancing and retreating, to imitate a combat (G). Then draw up, by degrees, the sixth, on which are painted the fire, flame, and smoke, so that the palaces and houses painted on the first glass may appear to take fire gradually, and at last present a general conflagration. After having represented these incidents with the greatest attention, you let fall the curtain to prepare for the third act. In this may be represented the inside of Priam's palace; where is seen an altar, round which several Trojan princesses appear, who have fled thither for safety. On the first glass may be painted the palace. On the second, a view of

the back part of the palace, with the altar. On the third, Priam with several Trojan men and women. On the fourth, Pyrrhus and a troop of Greeks. On the fifth, the same actors, with the palace in flames. On the sixth, a conflagration.—The two first glasses which are to be drawn up, should be placed before you raise the curtain. Then pass the third; next advance the fourth; which being drawn up, discovers on the fifth the palace in flames; then drawing up the sixth, let down the first, that the palace may appear entirely destroyed by the conflagration.

The fourth act may represent the environs of Troy, with a distant prospect of the sea. The first and third glasses of the first act may be here used; to which may be added a third, representing Æneas bearing his father Anchises, followed by his son Iulus and some Trojans. With this glass may be represented the flight of the Trojans and the embarkment of Æneas; with another glass, on which are painted certain vessels.—To this act the following scenes may be added: The cave of Æolus; the back part of the cave; Æolus; the winds; Juno in her chariot.

The fifth act should represent the open sea, with the fleet of Æneas sailing for Italy. On the first glass must be painted the sea, as in the eleventh experiment, or else the waves should be imitated by another glass under the first. On the second, the Trojan fleet. On the third, Neptune in his car. On the fourth, the palace of Jupiter. On the fifth, the inside of the palace; the gods assembled in council, with Venus obtaining leave of Jupiter for Æneas to land in Italy.—After having placed the first glass, that represents a calm sea, the curtain is raised, and the second scene is advanced, which contains the Trojan fleet. The first is then brought forward, to represent a violent tempest: then raising the third glass, Neptune appears, who commands the waves to be still, which is done by making the tempest subside by degrees. The fleet then advances, and passes over the whole theatre: presently after the fourth and fifth scenes descend, that represent Olympus, and finish the exhibition.

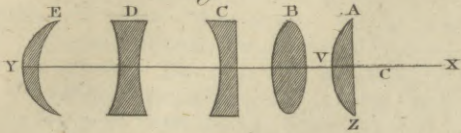
Note. We must here repeat, that if you would represent a subject of this sort to advantage, it is quite necessary that the glasses be well painted; and those that are to be in front should be in stronger and more opaque colours, that the images of those behind may not appear mixed with them, which will be the case if they are all equally transparent. The glasses should also be of different lengths; that some being placed before the others are drawn away, their extremities may not be perceived.

The larger these subjects are represented, the better effect they will have: the front of the theatre should appear to be about three feet wide; and if some parts of the figures were moveable, it would still add to the variety of the entertainment.

DIOSCOREA,

(G) He that moves the glasses, seeing the effect they produce, is the better able to render the representation as natural as possible.

Fig. 2.



DIVISIBILITY.

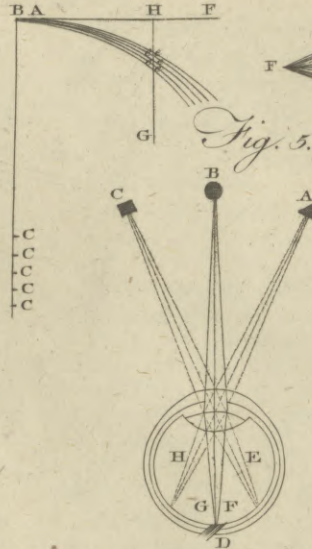


Fig. 1.

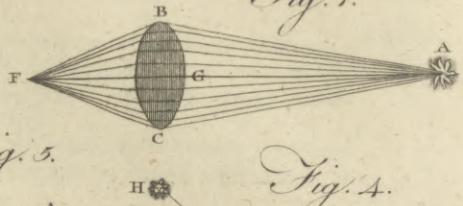


Fig. 6.

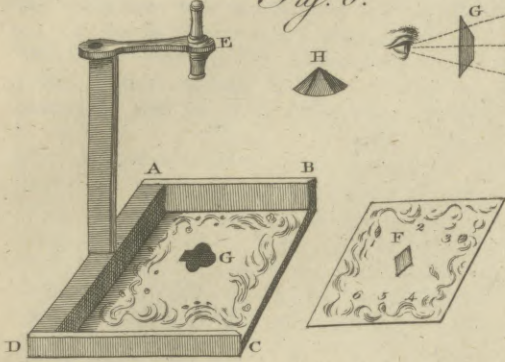


Fig. 4.

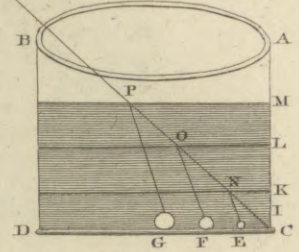


Fig. 8.

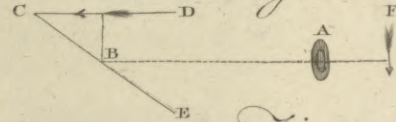


Fig. 9.

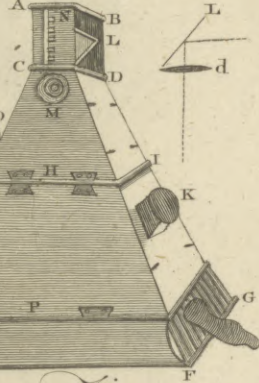


Fig. 3.

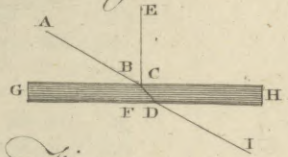
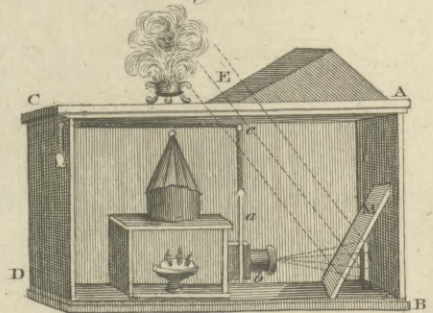


Fig. 15.



A. Bell Prin. Mul. Sculptor fecit.

Fig. 10.

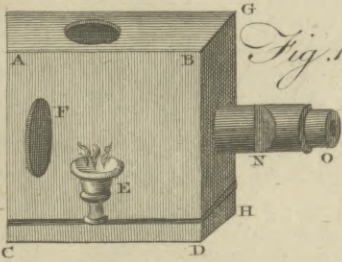


Fig. 7.

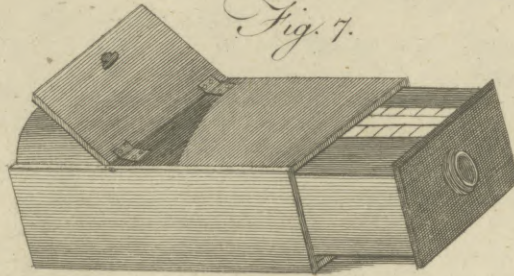


Fig. 14.

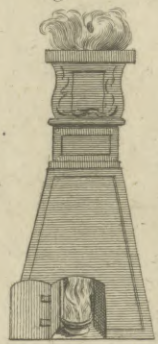


Fig. 16.

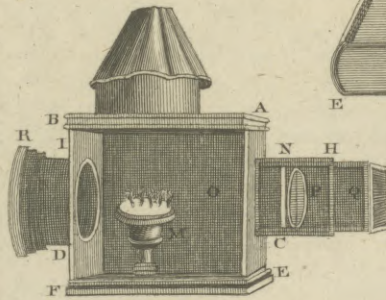


Fig. 11.

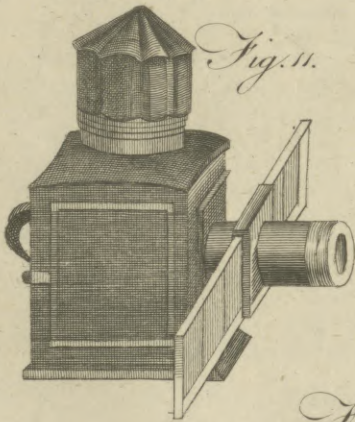


Fig. 12.

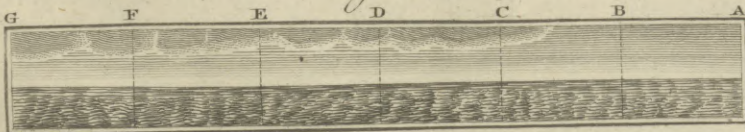


Fig. 13.



Dioscorea
||
Diospolites

DIOSCOREA, a genus of plants belonging to the diœcia class; and in the natural method ranking under the 11th order, *Sarmentaceæ*. See *BOTANY Index*.

The only remarkable and useful species is the bulbifera or yam. The roots of it are eaten by the inhabitants of both the Indies; and are particularly serviceable in the West India islands, where they make the greatest part of the negroes food. The plant is supposed to have been brought from the East to the West Indies; for it has never been observed to grow wild in any part of America; but in the island of Ceylon, and on the coast of Malabar, it grows in the woods, and there are in those places a great variety of sorts. It is propagated by cutting the root in pieces, observing to preserve an eye in each, as is practised in planting potatoes. One plant will produce three or four large roots. The skin of these roots is pretty thick, rough, unequal, covered with many stringy fibres or filaments, and of a violet colour approaching to black. The inside is white, and of the consistence of red beet. It resembles the potato in its mealiness, but is of a closer texture. When raw, the yams are viscous and clammy; when roasted or boiled, they afford very nourishing food; and are often preferred to bread by the inhabitants of the West Indies, on account of their lightness and facility of digestion. When first dug out of the ground, the roots are placed in the sun to dry; after which they are either put into sand, dry garrets, or casks; where, if kept from moisture, they may be preserved whole years, without being spoiled or diminished in their goodness. The root commonly weighs two or three pounds; though some yams have been found upwards of 20 pounds weight.

DIOSCORIDES, a physician of Cilicia, who lived, as some suppose, in the age of Nero. He was originally a soldier; but afterwards he applied himself to study, and wrote a book upon medicinal herbs.

DIOSCURIA (*διοσκουρια*; from *Διος*, *Jupiter*, and *κουροι*, *infants*), in antiquity, a festival in honour of the *Διοσκουροι*, or Castor and Pollux, who were reputed to be the sons of Jupiter. It was observed by the Cyrenians, but more especially by the Spartans, whose country was honoured by the birth of these heroes. The solemnity was full of mirth, being a time wherein they shared plentifully of the gifts of Bacchus, and diverted themselves with sports, of which wrestling matches always made a part.

DIOSMA, **AFRICAN SPIRÆA**, a genus of plants belonging to the pentandria class; and in the natural method ranking with those of which the order is doubtful. See *BOTANY Index*.

DIOSPOLIS, in *Ancient Geography*, a city of the Delta, or Lower Egypt; to the south of the Busiritic branch, before it divides into two.—Another of Bithynia, in the territory of Heraclea.—A third, called *Magna*, denoting Thebæ of the Higher Egypt.—A fourth, *Diospolis Parva*, the metropolis of the Nomos Diospolites of the Higher Egypt.—A fifth *Diospolis*, of Samaria, the same with Lydda.—A sixth *Diospolis*, the ancient name of Laodicea of Phrygia, on the Lycus.

DIOSPOLITES NOMOS, (Ptolemy,) a division of Thebais or the Higher Egypt, to distinguish it from another of the Lower Egypt or the Delta; to the

south of the Nomos Thinites, on the west side of the Nile.

Diospyros
||
Diplomatics.

DIOSPYROS, the **INDIAN DATE PLUM**: A genus of plants belonging to the polygamia class; and in the natural method ranking under the 18th order, *Bicornes*. See *BOTANY Index*.

DIPHTHONG, in *Grammar*, a double vowel, or the mixture of two vowels pronounced together, so as to make one syllable.

The Latins pronounced the two vowels in their diphthongs *ae* or *æ*, *oe* or *œ*, much as we do; only that the one was heard much weaker than the other, though the division was made with all the delicacy imaginable. Diphthongs, with regard to the eyes, are distinguished from those with regard to the ears: in the former either the particular sound of each vowel is heard in the pronunciation; or the sound of one of them is drowned; or lastly, a new sound, different from either, results from both: the first of these only are real diphthongs, as being such both to the eye and ear. Diphthongs with regard to the ear are either formed of two vowels meeting in the same syllable, or whose sounds are severally heard; or of three vowels in the same syllable, which only afford two sounds in the pronunciation.

English diphthongs, with regard to the eye and ear, are *ai*, *au*, *ea*, *ee*, *ei*, *oo*, *ou*. Improper English diphthongs, with regard to the eye only, are *aa*, *ea*, *eo*, *eu*, *ie*, *ei*, *oe*, *ue*, *ui*.

DIPLOE, in *Anatomy*, the soft medullium, or medullary substance which lies between the two laminae of the bones of the cranium. See *ANATOMY Index*.

DIPLOMA. See **DIPLOMATICS**.

In a peculiar sense, it is used for an instrument or license given by colleges, societies, &c. to a clergyman to exercise the ministerial function, or to a physician to practise the profession, &c. after passing examination, or admitting him to a degree.

DIPLOMATICS, the science of diplomas, or of ancient literary monuments, public documents, &c. It does not however, nor can it, absolutely extend its researches to antiquity; but is chiefly confined to the middle age, and the first centuries of modern times. For though the ancients were accustomed to reduce their contracts and treaties into writing; yet they graved them on tables, or covered them over with wax, or brass, copper, stone, or wood, &c. And all that in the first ages were not traced on brass or marble, has perished by the length of time, and the number of destructive events.

1. The word *diploma* signifies properly a letter or epistle, that is folded in the middle, and that is not open. But, in more modern times, the title has been given to all ancient epistles, letters, literary monuments, and public documents, and to all those pieces of writing which the ancients called *Syngraphia Chirographa*, *Codicilli*, &c. In the middle age, and in the diplomas themselves, these writings are called *Litteræ*, *Præcepta*, *Placita Chartæ indiculæ*, *Sagilla*, and *Bullæ*; as also *Panchartæ*, *Pantochartæ*, *Tracloria*, *Descriptiones*, &c. The originals of these pieces are named *Exemplaria*, or *Autographa*, *Chartæ authentica*, *Originalia*, &c. and the copies, *Apographa*, *Copia*, *Particulæ*, and so

Diploma-
tics.

forth. The collections that have been made of them, are called *Chartaria* and *Chartulia*. The place where these papers and documents were kept, the ancients named *Scrinia*, *Tabularium*, or *Ærarium*, words that were derived from the tables of brass, and, according to the Greek idiom, *Archeium* or *Archivum*.

2. In order to understand the nature of these ancient papers, diplomas, and manuscripts, and to distinguish the authentic from the counterfeit, it is necessary to know that the paper of the ancients came from Egypt, and was formed of thin leaves or membranes, taken from the branches of a tree named *Papyrus*, or *Biblum Ægyptiacum*, and which were pasted one over the other with the slime of the Nile, and were pressed and polished with a pumice stone. This paper was very scarce; and it was of various qualities, forms, and prices, which they distinguished by the names of *charta hieratica*, *luria*, *augusta*, *amphitheatica*, *saitica*, *tanirica*, *emporetica*, &c. They cut this paper into square leaves, which they pasted one to the other, in order to make rolls of them: from whence an entire book was called *volumen*, from *volvendo*; and the leaves of which it consisted, *paginæ*. Sometimes, also, they pasted the leaves all together by one of their extremities, as is now practised in binding; by this method they formed the back of a book, and these the learned called *codices*. They rolled the volume round a stick, which they named *umbilicus*; and the two ends that came out beyond the paper, *cornua*. The title, wrote on parchment, in purple characters, was joined to the last sheet, and served it as a cover. They made use of all sorts of strings or ribbands, and even sometimes of locks, to close the book; and sometimes also it was put into a case. But there is not now to be found, in any library or cabinet whatever, any one of these volumes. We have been assured, however, by a traveller, that he had seen several of them in the ruins of *Herculaneum*; but so damaged, the paper so stiff and brittle, by the length of time, that it was impossible to unroll them, and consequently to make any use of them; for on the first touch they fell into shatters.

3. We are ignorant of the precise time when our modern paper was invented; and when they began to make use of pens in writing, instead of the stalks of reeds. The ink that the ancients used, was not made of vitriol and galls, like the modern, but of foot. Sometimes also they wrote with red ink made of vermilion; or in letters of gold, on purple or violet parchment. It is not difficult for those who apply themselves to this study, to distinguish the parchment of the ancients from that of the moderns, as well as their ink and various exterior characters: but that which best distinguishes the original from the counterfeit is, the writing or character itself; which is so distinctly different from one century to another, that we may tell with certainty, within about 40 or 50 years, when any diploma was written. There are two works which furnish the clearest lights on this matter, and which may serve as sure guides in the judgments we may have occasion to make on what are called *ancient diplomas*. The one is the celebrated treatise on the Diplomatic, by F. Mabillon; and the other, the first volume of the *Chronicon Gotvicense*. We there find specimens of all the characters, the flourishes, and different methods of writing, of every age. For these matters, therefore, we

must refer our readers to those authors; and shall here only add, that,

4. All the diplomas are wrote in Latin, and consequently the letters and characters have a resemblance to each other: but there are certain strokes of the pen which distinguish not only the ages, but also the different nations; as the writings of the Lombards, French, Saxons, &c. The letters in the diplomas are also usually longer, and not so strong as those of manuscripts. There has been also introduced a kind of court hand, of a very disproportionate length, and the letters of which are called *Exiles littera crispæ, ac protractiones*. The first line of the diploma, the signature of the sovereign, that of the chancellor, notary, &c. are usually wrote in this character.

5. The signature of a diploma consists either of the sign of the cross, or of a monogram or cipher, composed of the letters of the names of those who subscribed it. The initial letters of the name, and sometimes also the titles, were placed about this cross. By degrees the custom changed, and they invented other marks; as, for example, the sign of Charlemagne was thus:

$$\begin{array}{c} R \\ K - \frac{\Delta}{V} - S \\ L \end{array}$$

They sometimes added also the dates and epoch of the signature, the feasts of the church, the days of the kalendar, and other like matters. The successive corruption of the Latin language, the style and orthography of each age, as well as their different titles and forms; the abbreviations, accentuation, and punctuation, and the various methods of writing the diphthongs; all these matters united, form so many characters and marks by which the authenticity of a diploma is to be known.

6. The seal annexed to a diploma was anciently of white wax, and artfully imprinted on the parchment itself. It was afterwards pendant from the paper, and enclosed in a box or case, which they called *bullæ*. There are some also that are stamped on metal, and even on pure gold. When a diploma bears all the characters that are requisite to the time and place where it is supposed to be written, its authenticity is not to be doubted: but at the same time we cannot examine them too scrupulously, seeing that the monks and priests of former ages have been very adroit in making of counterfeits; and the more, as they enjoyed the confidence of princes and statesmen, and were even sometimes in possession of their rings or seals.

7. With regard to manuscripts that were wrote before the invention of printing, it is necessary (1.) to know their nature, their essential qualities, and matter; (2.) to be able to read them freely, and without error; (3.) to judge of their antiquity by those characters which we have just mentioned with regard to the diplomas; and (4.) to render them of use in the sciences. As there are scarce any of the ancient codes now remaining (see par. 2.), wrote on the Egyptian paper, or on wood, ivory, &c. we have only to consider those that are written on parchment or vellum (*membraneos*), and such as are wrote on our paper (*chartaceos*). The former

Diploma-
tics.

Diplomatics || **Dipping.**
 former of these are in most esteem. With regard to the character, these codes are written either in square and capital letters, or in half square, or round and small letters. Those of the first kind are the most ancient. There are no intervals between the words, no letters different from the others at the beginning of any word, no points, nor any other distinction. The codes which are wrote in letters that are half square, resemble those we have in Gothic characters, as well for the age as the form of the letters. Such as are wrote in round letters are not so ancient as the former, and do not go higher than the ninth or tenth century. These have spaces between the words, and some punctuation. They are likewise not so well wrote as the preceding, and are frequently disfigured with comments. The codes are divided, according to the country, into Lombard, Italian, Gaulic, Franco-Gaulic, Saxon, Anglo-Saxon, &c.

8. In the ancient Greek books, they frequently terminated the periods of a discourse, instead of all other division, by lines; and these divisions were called, in Latin, *versus*, from *vertendo*: for which reason these lines are still more properly named *versus* than *lineæ*. At the end of a work, they put down the number of verses of which it consisted, that the copies might be more easily collated: and it is in this sense we are to understand Trebonius, when he says, that the Pandects contain 150,000 *pæne versusum*. These codes were likewise *vel probæ vel deterioris notæ*, more or less perfect, not only with regard to the calligraphy or beauty of the character, but to the correction of the text also.

9. It is likewise necessary to observe, in ancient codes, the abbreviations, as they have been used in different centuries. Thus, for example, A. C. D. signifies Aulus Caius Decimus; Ap. Cn. Appius Cneius; Aug. Imp. Augustus Imperator. The characters that are called *notæ*, are such as are not to be found in the alphabet; but which, notwithstanding, signify certain words. All these matters are explained in a copious manner by Vossius, and in the *Chronicon Gotvicense*. Lastly, The learned divide all the ancient codes into *codices minus raros, rariores, editos, et anecdotos*. The critical art is here indispensably necessary: its researches, moreover, have no bounds; and the more, as the use of it augments every day, by the discoveries that are made in languages, and by the increase of erudition.

DIPONDIUS, in the scripture language, is used by St Luke to signify a certain coin which was of very little value. Our translation of the passage is, "Are not two sparrows sold for two farthings?" In St Matthew, who relates the same thing, we read, "Are not two sparrows sold for a farthing?" The Greek reads *assarion* instead of *as*. Now *assarion*, as some say, was worth half an *as*, that is to say, four French deniers and $\frac{2}{3}$ th; and, according to others, two deniers and $\frac{1}{4}$ ths. *Dipondius* seems rather to signify half an *as*. Calmet, *Diction. Bibl.* Luke xii. 6. Matt. x. 29.

Dr Arbuthnot differs in opinion from the author last quoted. He says, that this coin was at first *libra-lis*, or of a pound weight; and even when diminished, it retained the name of *libella*. So that *dipondius* denotes two asses.

DIPPING, among miners, signifies the interruption or breaking off the veins of ore; an accident that

gives them a great deal of trouble before they can discover the ore again. A great deal of the skill of the miners consists in the understanding this dipping of the veins, and knowing how to manage in it. In Cornwall they have this general rule to guide them in this respect: most of their tin-loads, which run from east to west, constantly dip towards the north. Sometimes they underlie; that is, they slope down towards the north three feet in height perpendicular. This must carefully be observed by the miners, that they may exactly know where to make their air-shafts when occasion requires; yet, in the higher mountains of Dartmaer, there are some considerable loads, which run north and south; these always underlie toward the east. Four or five loads may run nearly parallel to each other in the same hill; and yet, which is rare, they may meet all together in one hatch, as it were a knot, which well tins the place, and so separate again, and keep their former distances.

DIPPING Needle, an instrument used for observing the quantity of inclination towards the earth, assumed by any needle or other body after it has acquired the magnetic virtue. This was first observed by one Robert Norman, an Englishman, and maker of compasses for mariners, in the end of the 16th century; who finding that he was always obliged to counterbalance that end which turns to the north by a bit of wax or such other substance, though the balance had been ever so exact before, published an account of his discovery as a matter of importance. The subject was instantly attended to; and instruments were not only contrived for ascertaining the quantity of the dip, but various speculations formed concerning the cause of such a surprising phenomenon.

The general phenomena of the dipping needle are: that about the equatorial parts of the earth it remains in a horizontal position, but depresses one end as we recede from these; the north end if we go towards the north, and the south end if we proceed towards the south pole. The farther north or south that we go, the inclination becomes the greater; but there is no place of the globe hitherto discovered where it points directly downwards, though it is supposed that it would do so in some part very near the pole. Its inclination is likewise found to vary very considerably at different times in different places of the earth, and by some changes of situation, in such a manner as must appear at first sight very unaccountable. Of all those who have attempted the investigation of this obscure subject, none have been more successful than M. Cavallo, who in his *Treatise on Magnetism* has given particular attention to all the phenomena, and accounted for them upon plain and rational principles, in the following manner:

The dip of the magnetical needle in general may be understood from the following easy experiment:— Lay an oblong magnet horizontally upon a table, and over it suspend another smaller magnet (a sewing needle to which the magnetic virtue has been communicated will answer the purpose), in such a manner as to remain in a horizontal position when not disturbed by another magnet. Now, if this last small magnet or sewing needle, suspended by the middle, be brought just over the middle of the large one, it will turn itself in such a manner that the south pole of the small mag-

Dipping Needle.

Dipping
Needle.

net will point towards the north pole of the large one; and if at an equal distance from both, will remain in a horizontal position. But if we move it nearer to one of the poles than the other, it will readily be understood that the corresponding end of the needle will be attracted by the pole to which it approaches, and of consequence inclined downwards; the contrary end being proportionably elevated. It is likewise evident, that this inclination will be greater or less according to the distance at which the small magnet is placed from the pole of the large one; the attraction of the nearest pole having always the greatest effect upon it. And it is equally plain, that when brought directly over one of the poles of the large magnet, it will turn its own contrary one directly towards it, and thus lie exactly in the axis of the large one.

The application of this experiment to the phenomena of the dipping needle is obvious, as nothing more is requisite for solving the whole mystery than to suppose the earth itself to be the large magnet, and the magnetic needle or any other magnetic body the small magnet in the experiment: for admitting that the north pole of the earth possesses a south magnetism, and that the opposite pole is possessed of a north magnetical polarity; it appears, and the theory is confirmed by experiment, that when a magnet is suspended properly in the equatorial parts of the world, it must remain in a horizontal position; but when removed nearer to one of the poles, it must incline one of its extremities, viz. that which is possessed of the contrary magnetic polarity; and that this inclination must increase in proportion as the magnet or magnetic needle recedes from the equator of the earth; and, lastly, when brought exactly upon either of the poles of the earth, it must stand perpendicular to the ground, or in the same direction with the axis of the earth.

The only difficulty in this explanation arises from the attributing a south magnetism to the north pole of the earth: but by this our author means only that its magnetism is contrary to that end of the magnetic needle which turns towards it; and in the same manner it must be understood, that the south pole of the earth has a north magnetic polarity.

If the extremities of the axis of the earth, or the poles about which it performs its diurnal revolution, coincided with its magnetic poles, or even if the magnetic poles were always at a certain distance from them, the inclination of the needle would be always the same at equal distances from the equator, and might be very useful for determining the latitudes. But it would seem, that these poles are perpetually shifting their place, since both the inclination and horizontal direction of the needle are continually varying even in the same place; so that its quantity of inclination cannot be exactly calculated. Two general remarks may be made upon this subject. 1. That the inclination of the needle does not alter regularly in going from north to south, or from south to north, in any meridian.— 2. That its alteration in the same place, and at different times, is but small. Thus, in London, about the year 1576, the dip was $71^{\circ} 50'$ below the horizon, and in 1775 it stood at $72^{\circ} 3'$; the alteration in near 200 years scarce amounting to three quarters of a degree, which may be attributed to the errors of the instruments; as these were at first exceedingly erroneous,

and even yet are far from being arrived at perfection.

The general method of constructing dipping needles is, to pass an axis quite through the needle itself, and to let the extremities of the axis rest upon two supports, like the beam of a pair of scales, that the needle may move vertically round; and hence, when placed in the magnetic meridian, it will naturally assume that position which is called the *magnetic line*, viz. the two ends nearly north and south, and one of them inclined considerably to the horizon. The degrees of the inclination are shown upon a graduated circle; and when the instrument is made use of at land it has a stand, but at sea a ring is necessary to suspend it. When furnished with a stand, it has also a spirit-level; and the stand has three screws, by which the whole is adjusted in such a manner as to let the centre of motion in the needle, and the mark of 90° on the lower part of the divided circle, be exactly in the same line perpendicular to the horizon.

The greatest imperfections attending this instrument are the balancing of the needle itself, and the difficulty of knowing whether, after being made magnetic, it be properly balanced or not. The inaccuracy here indeed can be but very small, as arising only from dust or moisture. The method recommended by Mr Cavallo to obviate these inconveniences, is first to observe the dip of the needle; then to reverse its magnetism by the application of magnets, so that the end of it which before was elevated above the horizon may now be below it; and, lastly, to observe its dip again; for a mean of the two observations will be pretty near the truth, though the needle may not be perfectly balanced. See *MAGNETISM* and *MAGNETICAL Needle*.

DIPSACUS, TEAZEL: A genus of plants belonging to the tetrandria class; and in the natural method ranking under the 48th order, *Aggregata*. See *BOTANY Index*.

DIPSAS, a sort of serpent, the bite of which produces such a thirst as proves mortal: whence its name *dipsas*, which signifies thirsty. In Latin it is called *fitula*, "a pail." Moses speaks of it in Deut. viii. 15.

DIPTERA (from *dis*, and *πτερον*, wing), in Zoology, an order of insects, which have only two wings, and under each wing a style, or oblong body, terminated by a protuberance or head, and called a *balancer*. See *ENTOMOLOGY Index*.

DIPTOTES, in Grammar, are such nouns as have only two cases, as *suppetiæ*, *suppetias*, &c.

DIPTYCHA, in antiquity, a public register, wherein were written the names of the consuls, and other magistrates, among the heathens; and of bishops, and defunct as well as surviving brethren, among the Christians.

The word is formed from the Greek *διπτυχων*, or *διπτυχα*, and that from *διπτωξ*, a masculine noun derived from *πτωσσω*, I fold or plait. From its future *πτωξω* is formed *πτωξ*, a fold or plait, to which adding *dis*, twice, we have *διπτωξ*, in the genitive *διπτυχως*, whence the nominative neuter *διπτυχων*, q. d. a book folded in two leaves; though there were some in three, and others in four or five leaves. An ingenious author imagines this name to have been first given them to distinguish them from the books that were rolled, called *volumina*.

Dipping
Needle
||
Diptycha.

Diptycha || **Direction.** It is certain there were profane diptycha in the Greek empire, as well as sacred ones in the Greek church. The former were the matricula, or register, wherein the names of the magistrates were entered: in which sense diptycha is a term in the Greek chancery.

Sacred DIPTYCHA. The word is plural; diptycha being a double catalogue, in one whereof were written the names of the living, and in the other those of the dead, which were to be rehearsed during the office. We meet with something not unlike the sacred diptychs of the Greeks, in the canon of the mass according to the Latin usage; where the people are enjoined to pray once for the living, and once for the dead; several saints are invoked in different times, &c. In these diptycha were entered the names of bishops, who had governed their flock aright; and these were never expunged out of the same, unless they were convicted of heresy, or some other gross crime. In the diptycha were likewise entered the names of such as had done any signal service to the church, whether they were living or dead, and mention was made of them in the celebration of the liturgy.

Casaubon, in his observations on Athenæus, lib. vi. cap. 14. supposes the Christians to have borrowed the custom of writing names in a book, and rehearsing them at mass, from the heathens, who entered the names of persons they would do any signal honour to, in the verses of the Salli; as was done to Germanicus and Verus, sons of the emperor Marcus Aurelius, and a long time before, during the age of the republic, to Mamercus Veturius, and Lucia Volturnia, as we are told by Tacitus, lib. ii. Spartian, Ovid, Festus, Plutarch, &c. But Fa. Rosweyde does not approve this notion of Casaubon. The pretended St Dionysius, a very ancient author, says the contrary, and asserts the first establishment of this usage to have been founded on Scripture, 2 Tim. ii. 19. Psal. cxvi. 15. Rosweyde adds Ecclesiastic. xliv. 1. and takes these to have been the passages the ancient church had a view to, rather than the Sallian verses.

The profane diptycha were frequently sent as presents to princes, &c. on which occasion they were finely gilt, and embellished; as appears from Symmachus, lib. ii. ep. 81. Those presented were usually of ivory. The first law, De Expenf. Ludor. C. Theod. forbids all magistrates below consuls to make presents of diptycha of ivory in the public ceremonies.

DIRCA, a genus of plants belonging to the octandria class; and in the natural method ranking under the 31st order, *Veprecule*. See **BOTANY Index**.

DIRÆ, the general name of the three Furies in the Pagan system of theology. They were so called, as being *quasi Deorum iræ*, the ministers of divine vengeance in punishing guilty souls after death. They were the daughters of *Night* and *Acheron*. See **FURIES**.

DIRECT, in *Arithmetic*, is when the proportion of any terms, or quantities, is in the natural or direct order in which they stand, being the opposite to inverse, which considers the proportion in the inverted order of the terms. So, 3 : 4 :: 6 : 8 directly; or 3 : 4 :: 8 : 6 inversely.

DIRECTION, in *Mechanics*, signifies the line or path of a body's motion, along which it endeavours to

proceed according to the force impressed upon it. See **Direction** || **Disability.**
MECHANICS.

DIRECTION, in *Astronomy*, the motion and other phenomena of a planet when direct.

DIRECTION, in *Astrology*, is a kind of calculus, by which it is pretended to find the time in which any notable accident shall befall the person whose horoscope is drawn.

DIRECTOR, in commercial polity, a person who has the management of the affairs of a trading company: thus we say, the directors of the India Company, South Sea Company, &c. See **COMPANY**.

The directors are considerable proprietors in the stocks of their respective companies, being chosen by plurality of votes from among the body of proprietors. The Dutch East India Company had formerly 60 such directors; that of France, 21: the British East India Company has 24, including the chairman, who may be re-elected for four years successively. The last have salaries of 150l. a-year each, and the chairman 200l. They meet at least once a-week, and commonly oftener, being summoned as occasion requires. The directors of the Bank of England are 24 in number, including the governor and deputy-governor.

DIRECTOR, in *Surgery*, a grooved probe, to direct the edge of the knife or scissars in opening sinuses or fistulæ, that by this means the adjacent vessels, nerves, and tendons, may remain unhurt. See **SURGERY Index**.

DIRIBITORES, among the Romans, officers appointed to distribute tablets to the people at the comitia. See **COMITIA**.

DIRIGENT, or **DIRECTRIX**, a term in geometry, signifying the line of motion, along which the describing line or surface is carried in the genesis of any plane or solid figure.

DIS, an inseparable article prefixed to divers words; the effect whereof is either to give them a signification contrary to what the simple words have, as *disoblige*, *disobey*, &c.; or to signify a separation, detachment, &c. as *disposing*, *distributing*.

DIS, a town of Norfolk, seated on the river Wavenay, on the side of a hill. It is a neat flourishing town, with one large church, a Presbyterian and a Quaker meeting. It has about 600 good houses; the streets are well paved, pretty wide, and always clean. At the west end of the town is a large meer or lake; but so muddy, that the inhabitants can make no other use of it but in catching of eels. In the town are carried on manufactories of sailcloth, hose, and the making of stays. E. Long. 1. 16. N. Lat. 52. 25.

DIS, a god of the Gauls, the same as Pluto the god of hell. The inhabitants of Gaul supposed themselves descended from that deity.

DISA, a genus of plants belonging to the gynandria class. See **BOTANY Index**.

DISABILITY, in *Law*, is when a man is disabled, or made incapable to inherit any lands, or take that benefit which otherwise he might have done: and this may happen four ways; by the act of an ancestor, or of the party himself, by the act of God, or of the law. 1. Disability by the act of the ancestor, is where the ancestor is attainted of high treason, &c. which corrupts the blood of his children, so that they may not inherit his estate. 2. Disability by the act of the party,

Disandria
||
Discipline.

party, is where a man binds himself by obligation, that, upon surrender of a lease, he will grant a new estate to a lessee; and afterwards he grants over the reversion to another, which puts it out of his power to perform it. 3. Disability by the act of God, is where a man is *non sane memorie*, whereby he is incapable to make any grant, &c. So that, if he passeth an estate out of him, it may after his death be made void; but it is a maxim in law, "That a man of full age shall never be received to disable his own person." 4. Disability by the act of the law, is where a man by the law, without any thing by him done, is rendered incapable of the benefit of the law; as an alien born, &c.

DISANDRIA, a genus of plants, belonging to the heptandria class. See *BOTANY Index*.

ISLANDS OF DISAPPOINTMENT, a cluster of small islands, lying in S. Lat. 14. 10. W. Long. 141. 16. They were discovered by Commodore Byron in 1765, who gave them their name from the shores affording no anchorage for his ships; for which reason he was obliged to quit them without landing, or procuring any refreshments for his crew, who were then languishing with sickness. They are inhabited by Indians, who appeared on the beach with spears in their hands, that were at least 16 feet long. They everywhere discovered hostile intentions, and seemed by signs to threaten the people in the boat with death if they came ashore. There are cocoa trees in great abundance, and the shore abounds with turtle.

DISC, in antiquity, a quoit made of stone, iron, or copper, five or six fingers broad, and more than a foot long, inclining to an oval figure, which they hurled in form of a bowl, to a vast distance, by the help of a leathern thong tied round the person's hand who threw it, and put through a hole in the middle. Homer has made Ajax and Ulysses great artists at this sport.

Disc, in *Astronomy*, the body and face of the sun and moon, such as they appear to us on the earth; or the body and face of the earth, such as it appears to a spectator in the moon.

Disc, in *Optics*, is the width of the aperture of telescope glasses, whatever their form be, whether plane, convex, concave, &c.

DISCERNING, or DISCERNMENT, a faculty of the mind whereby it distinguishes between ideas. See *METAPHYSICS*.

DISCIPLE, one who learns any thing from another: thus, the followers of any teacher, philosopher, &c. are called *disciples*. In the Christian sense, they were followers of Jesus Christ, in general; but in a more restrained sense, the disciples denote those alone who were the immediate followers and attendants on his person, of which there were 70 or 72. The names *disciples* and *apostles* are often synonymously used in the gospel history; but sometimes the apostles are distinguished from disciples, as persons selected out of the number of disciples, to be the principal ministers of his religion: of these there were only 12. The Latins kept the festival of the 70 or 72 disciples on July 15th, and the Greeks on January 4th.

DISCIPLINE, in a general sense, denotes instruction and government, as military discipline, ecclesiastical discipline, &c.

Ecclesiastical discipline consists in putting those laws in execution by which the church is governed, and inflicting the penalties enjoined by them against the several sorts of offenders that profess the religion of Jesus. The primitive church never pretended to exercise discipline upon any but such as were within her pale, in the largest sense, by some act of their own profession; and even upon these she never pretended to exercise her discipline so far as to cancel or disannul their baptism: all that she pretended to was to deprive men of the benefits of external communion, such as public prayer, receiving the eucharist, and other acts of divine worship. The church discipline was only confined to the admonition of the party, and to the lesser and greater excommunication.

As to the objects of ecclesiastical discipline, they were all such delinquents as fell into great and scandalous crimes after baptism.

Discipline, in a more peculiar sense, is used for the chastisements or bodily punishments inflicted on a religious of the Romish church who has been found a delinquent; or even for that which the religious voluntarily undergo or inflict on themselves, by way of mortification.

Book of DISCIPLINE, in the history of the church of Scotland, is a common order, drawn up by the assembly of ministers in 1650, for the reformation and uniformity to be observed in the discipline and policy of the church. In this book the government of the church by prelates is set aside, church sessions are established, the superstitious observation of fast days and saints days is condemned, and other regulations for the government of the church are determined. This book was approved by the privy council, and is called *the First Book of Discipline*.

DISCORD, in general, signifies disagreement, or opposition between different persons or things.

DISCORD, in *Music*, every sound which, joined with another, forms an assemblage disagreeable to the ear; or rather, every interval whose extremes do not coalesce. Now, as there are no other concords or consonances, except those which form amongst themselves, and with their fundamental sound, perfect chords, it follows, that every interval must be a real dissonance or discord: even the third and sixth were reckoned such among the ancients, who excluded them from the number of consonant chords.

The term *dissonance*, which is synonymous with discord, is compounded of two words, the inseparable preposition *dis* and the verb *sonare*; which, both in a literal and metaphorical sense, signifies *disagreement* or *disunion*. In reality, that which renders dissonances grating, is, that the sounds which form them, far from uniting in the ear, seem to repel each other, and are heard each by itself as two distinct sounds, though produced at the same time.

This repulsion or violent oscillation of sounds is heard more or less as the vibrations which produce it are more or less frequently coincident. When two vocal strings are gradually tuned, till they approach a consonant interval, the pulsations become slower as the chord grows more just, till at last they are scarcely heard, if heard at all; from whence it appears certain, that the pleasure produced in us by harmony results from the more or less exact and frequent coincidence

Discipline
||
Discord.

Discord. or vibration; though the reason why this coincidence should give pleasure, more than any other modification or combination of sounds, appears to us inscrutable. The agreeable effects of dissonance in harmony, are no objection to this theory; since it is allowed, that the sensations excited by discord are not in themselves immediately and necessarily pleasing, but only please by auricular deception. The ear is surpris'd with the shock it receives, without being able to imagine how it should have happened; and in proportion as it is harsh and grating, we feel the pleasure of returning harmony enhanced, and the disappointment of being artfully and insensibly extricated more agreeable.

The name of *dissonance* is given sometimes to the interval, and sometimes to each of the two sounds which form it. But though two sounds equally form a dissonance between themselves, the name is most frequently given to that sound in particular which is most extraneous to the chord.

The number of possible dissonances is indefinite; but as in music we exclude all intervals which are not found in the system received, the number of dissonances is reduced to a very few: besides, in practice, we can only select from those few such as are agreeable to the species, and the mode in which we compose; and from this last number we must exclude such as cannot be used consistently with the rules prescribed. But what are these rules? Have they any foundation in nature, or are they merely arbitrary? This is what Rousseau, whom in this article we have followed or abandoned as his observations appeared useful or frivolous, proposes to investigate as its principal object.

But where does his scrutiny terminate? Not in the abolition of the rules prescribed. These have still subsisted, and will still subsist, while the frame of man, and the nature of music, remain what they are. If then the rules be permanent and universal, the principle upon which they are founded may be latent or ambiguous; but the rules themselves can never be purely arbitrary. How else could it happen, that Rameau, D'Alembert, and Rousseau, should admit the force and effect of these rules, whilst each of those masters exerts his whole genius to give a different account of their cause and origin? Rousseau himself, as we have seen in a former article, inculcates the necessity of dissonances for the completion of harmony; (see *CHORD*). Now, if this be true, the easiest methods of introducing and dismissing these discords must be the most eligible, and of consequence the rules for using them must be established. It is not then upon the subsistence or demolition of any particular theory that they depend. Should we attend to the particular objections which may be urged against any system whatever; where is the theory which will be found proof against the efforts of scepticism? After all, the objections of Rousseau against Rameau's theory, as applied by D'Alembert to the origin of consonances, (see *MUSIC*, art. 94, 95, 69, 97, 98, 99.), appear to be much more frivolous than the analogies from which he pretends this origin to be deduced. It appears from D'Alembert's exposition of this theory, that, if not for all, it affords a solution for the most material and essential phenomena in harmony; which is sufficient for its establishment, till another can be found, which gives a rational and consist-

ent account of the whole: a discovery which has not yet been made. But, whilst we acknowledge the futility of Rousseau's objections against D'Alembert's explication of dissonances, we must at the same time admire the ingenuity with which he has deduced them from principles purely mechanical, without departing from the system of M. Rameau. This mechanical explication will be found in his *Musical Dictionary*, under the article *Dissonance*.

DISCORD (the goddess of), in Pagan theology. She is represented by Aristides with fiery eyes, a pale countenance, livid lips, and wearing a dagger in her bosom. It was she who at the marriage of Peleus and Thetis threw in the golden apple, whereon was written "To the fairest:" which occasioned a contention between the goddesses Juno, Minerva, and Venus; each pretending a title to the apple. She was likewise called *Ate* and *Eris*.

DISCOVERY, in dramatic poetry, a manner of unravelling a plot or fable in tragedies, comedies, and romances; wherein, by some unforeseen accident, a discovery is made of the name, fortune, quality, &c. of a principal person, which were before unknown. See *CATASTROPHE*.

DISCOUNT, in commerce, a term among traders, merchants and bankers. It is used by the two former on occasion of their buying commodities on the usual time of credit, with a condition that the seller shall allow the buyer a certain discount at the rate of so much per cent. per annum, for the time for which the credit is generally given, upon condition that the buyer pays ready money for such commodities, instead of taking the time of credit. Traders and merchants also frequently taking promissory notes for moneys due payable to them or order at a certain time, and sometimes having occasion for money before the time is elapsed, procure these notes to be discounted by bankers before the time of payment. Bills of exchange are also discounted by bankers; and in this consists one article of the profits of banking. See *BANK*.

DISCRETE, or *DISJUNCT*, *PROPORTION*, is when the ratio of two or more pairs of numbers or quantities is the same, but there is not the same proportion between all the four numbers. Thus, if the numbers 3 : 6 :: 8 : 16 be considered, the ratio between 3 : 6 is the same as that between 8 : 16, and therefore the numbers are proportional: but it is only discretely or disjunctly, for 3 is not to 6 as 6 to 8; that is, the proportion is broken off between 8 and 3, and is not continued as in the following continual proportionals, 3 : 6 :: 12 : 24.

DISCRETE Quantity, is such as is not continued and joined together. Such, for instance, is any number.

DISCRETION; prudence, or knowledge to govern one's self.

There are many more shining qualities in the mind of man, but there is none so useful as discretion; it is this indeed that gives a value to all the rest, which sets them at work in their proper times and places; and turns them to the advantage of the person who is possessed of them. Without it learning is pedantry, and wit impertinence; virtue itself looks like weakness; the best parts only qualify a man to be more sprightly in errors, and active to his own prejudice.

Nor does discretion only make a man master of his

Discord
||
Discretion.

Discretion own parts, but of other men's. The discreet man finds out the talents of those he converses with, and knows how to apply them to proper uses. Accordingly, if we look into particular communities and divisions of men, we may observe that it is the discreet man, not the witty, nor the learned, nor the brave, who guides the conversation, and gives measures to the society. A man with great talents, but void of discretion, is like Polyphemus in the fable, strong and blind, endued with an irresistible force, which for want of sight is of no use to him. Though a man has all other perfections, and wants discretion, he will be of no great consequence in the world; but if he has this single talent in perfection, and but a common share of others, he may do what he pleases in his particular station of life.

It is proper, however, to distinguish between *discretion* and *cunning*, the latter being the accomplishment only of little, mean, ungenerous minds. Discretion points out the noblest ends to us, and pursues the most proper and laudable methods of attaining them; cunning has only private selfish aims, and sticks at nothing which may make them succeed. Discretion has large and extended views, and, like a well-formed eye, commands a whole horizon: cunning is a kind of short-sightedness, that discovers the minutest objects which are near at hand, but is not able to discern things at a distance. Discretion, the more it is discovered, gives the greater authority to the person who possesses it: cunning, when it is once detected, loses its force, and makes a man incapable of bringing about even those events which he might have done, had he passed only for a plain man. Discretion is the perfection of reason, and a guide to us in all the duties of life; cunning is a kind of instinct, that only looks out after our immediate interest and welfare. Discretion is only found in men of strong sense and good understanding: cunning is often to be met with in brutes themselves, and in persons who are but the fewest removes from them. In short, cunning is only the mimic of discretion, and may pass upon weak men, in the same manner as vivacity is often mistaken for wit, and gravity for wisdom.

DISCUS, in antiquity. See DISC.

DISCUS, in *Botany*, the middle part of a radiated compound flower, generally consisting of small florets, with a hollow regular petal. It is commonly surrounded by large, plain, or flat, tongue-shaped petals, in the circumference or margin; as in daisy, groundsel, and leopards-bane; sometimes the circumference is naked, as in cotton-weed and some species of colts-foot.

Discus Foli, the surface of the leaf.

DISCUSSION, in matters of literature, signifies the clear treating or handling of any particular point, or problem, so as to shake off the difficulties with which it is embarrassed: thus we say, *such a point was well discussed*, when it was well treated of and cleared up.

DISCUTIENTS, in *Medicine*, are such remedies, as, by their subtilty, dissolve a stagnating or coagulated fluid, and dissipate the same without an external solution of continuity.

DISDIACLASTIC CRYSTAL, in *Natural History*, a name given, by Bartholine and some others, to a mineral substance, more usually called, from the place

whence it was first brought, *Iceland crystal*. See MINERALOGY *Index*. Disdiapason, Disease.

DISDIAPASON, or BISDIAPASON, in *Music*, a compound concord, described by F. Parran, in the quadruple ratio of 4 : 1, or 8 : 2.

DISDIAPASON *Diapente*, a concord in a sextuple ratio of 1 : 6.

DISDIAPASON *Semi-Diapente*, a compound concord in the proportion of 16 : 3.

DISDIAPASON *Ditone*, a compound consonance in the proportion of 10 : 2.

DISDIAPASON *Semi-Ditone*, a compound concord in the proportion of 24 : 5.

DISEASE, has been variously defined by physicians, almost every founder of a new system having given a definition of *disease*, differing in some respects from his predecessors. For a particular account of these definitions, see MEDICINE.

Of all animals, man is subject to the most diseases; and of men, the studious and speculative are most exposed thereto. Other animals have their diseases; but they are in smaller number: nor are plants without them; though their maladies scarce exceed half a score. The ancients deified their diseases. Some diseases only impair the use of the part immediately affected; as the ophthalmia, gout, &c. Others destroy it entirely; as the *gutta serena*, palsy, &c. Some affect the whole body; as the fever, apoplexy, epilepsy, &c. Others only impair a part; as the asthma, colic, dropsy, &c. Some only affect the body; as the gout: others disturb the mind; as melancholy, delirium, &c. Lastly, others affect both the body and mind; as the mania, phrenzy, &c.

The colder the country, in general, the fewer and the less violent are the diseases. Scheffer tells us that the Laplanders know no such thing as the plague, or fevers of the burning kind, nor are subject to half the distempers we are. They are robust and strong, and live to 80, 90, and many of them to more than 100 years; and at this great age they are not feeble and decrepid as with us; but a man of 90 is able to work or travel as well as a man of 60 with us. They are subject, however, to some diseases more than other nations; thus they have often distempers of the eyes, which is owing to their living in smoke, or being blinded by the snow. Pleurisies and inflammations of the lungs are also very frequent among them; and the small-pox often rages with great violence. They have one general remedy against these and all other internal diseases: this is the root of that sort of moss, as Scheffer expresses it, which they call *jertb*. They make a decoction of this root in the whey of rein-deer milk, and drink very large doses of it warm, to keep up a breathing sweat; if they cannot get this, they use the stalks of angelica boiled in the same manner: they have not so great an opinion of this as of the other remedy: but the keeping in a sweat, and drinking plentifully of diluting liquors, may go a great way in the cure of their diseases, whether either the one or the other of the drugs have any virtue or not. They cure pleurisies by this method in a very few days; and get so well through the smallpox with it, that very few die of it.

It has been always observed, that people of particular places were peculiarly subject to particular diseases, which

Disease.

which are owing to their manner of living, or to the air and effluvia of the earth and waters. Hoffman has made some curious observations on diseases of this kind. He observes, that swellings of the throat have always been common to the inhabitants of mountainous countries; and the old Roman authors say, Who wonders at a swelled throat in the Alps? The people of Switzerland, Carinthia, Stiria, the Hartz forest, Transylvania, and the inhabitants of Cronstadt, he observes, are all subject to this disease from the same cause.

The French are peculiarly troubled with fevers, with worms, and with hydroceles and sarcocoeles; and all these disorders seem to be owing originally to their eating very large quantities of chestnuts. The people of our own nation are peculiarly afflicted with hoarsenesses, catarrhs, coughs, dysenteries, consumptions, and the scurvy; and the women with the *fluor albus* or whites; and children with a disease scarce known elsewhere, which we call the *ricketts*. In different parts of Italy different diseases reign. At Naples the venereal disease is more common than in any other part of the world. At Venice, people are peculiarly subject to the bleeding piles. At Rome, tertian agues and lethargic distempers are most common. In Tuscany the epilepsy or falling sickness. And in Apulia they are most subject to burning fevers, pleurisies, and to that sort of madness which is attributed to the bite of the tarantula, and which, it is said, is only to be cured by music. In Spain apoplexies are common, as also melancholy, hypochondriacal complaints, and bleeding piles. The Dutch are peculiarly subject to the scurvy, and to the stone in the kidneys. Denmark, Norway, Sweden, Pomerania, and Livonia, are all terribly afflicted with the scurvy: and it is remarkable, that in Denmark, Sweden, and Norway, fevers are very common; but in Iceland, Lapland, and Finland, there is scarce ever such a disease met with; though peripneumonies are very common in these places, as also diseases of the eyes and violent pains of the head. The Russians and Tartars are afflicted with ulcers, made by the cold, of the nature of what we call chilblains, but greatly worse; and in Poland and Lithuania there reigns a peculiar disease called the *plica polonica*, so terribly painful and offensive, that scarce any thing can be thought of worse. The people of Hungary are very subject to the gout and rheumatism: they are more infested also with lice and fleas than any other people in the world, and they have a peculiar disease which they call *cremor*. The Germans, in different parts of the empire, are subject to different reigning diseases. In Westphalia, they are peculiarly troubled with peripneumonies and the itch. In Silesia, Franconia, Austria, and other places thereabout, they are very liable to fevers of the burning kind, to bleedings at the nose, and other hæmorrhages; and to the gout, inflammations, and consumptions. In Misnia they have purple fevers; and the children are peculiarly infested with worms. In Greece, Macedonia, and Thrace, there are very few diseases; but what they have are principally burning fevers and frenzies. At Constantinople the plague always rages; and in the West Indian islands, malignant fevers, and the most terrible colics. These diseases are called *endemic*.

DISEASES of Horses. See FARRIERY.

DISEASES of Dogs. See DOGS.

DISEASES of Plants. See AGRICULTURE Index.

DISEMBOGUE. When a ship passes out of the mouth of some great gulf or bay, they call it *disemboguing*. They say also of a river, that at such a place, or after it has run so many leagues, it disembogues itself into the sea.

DISFRANCHIZING, among civilians, signifies the depriving a person of the rights and privileges of a free citizen or subject.

DISGUISE, a counterfeit habit. Persons doing unlawful acts in disguise are by our statutes sometimes subjected to great penalties, and even declared felons. Thus, by an act commonly called the *black act*, persons appearing disguised and armed in a forest or grounds enclosed, or hunting deer, or robbing a warren or a fish-pond, are declared felons.

DISH, in mining, is a trough made of wood, about 28 inches long, four inches deep, and six inches wide; by which all miners measure their ore. If any be taken selling their ore, not first measuring it by the bar-masser's dish, and paying the king's duty, the seller forfeits his ore, and the buyer forfeits for every such offence 40s. to the lord of the field or farmer.

DISJUNCTIVE, something that separates or disjoins. Thus, *or, neither, &c.* which in connecting a discourse, yet separate the parts of it, are called *disjunctive conjunctions*.

DISK. See DISC.

DISLOCATION, the putting a bone out of joint by some violence, usually called by the physicians *luxation*.

DISMISSION of a BILL, in *Chancery*. If the plaintiff does not attend on the day fixed for the hearing, his bill is dismissed with costs. It may be also dismissed for want of prosecution, which is in the nature of a non suit at law, if he suffers three terms to elapse without moving forward in the cause.

DISMOUNTING, in the military art, the act of unhorsing. Thus, to dismount the cavalry, the dragoons, or the like, is to make them alight. To dismount the cannon, is to break their carriages, wheels, and axletrees, so as render them unfit for service. Horses are also dismounted when they are rendered unfit for service.

DISPARAGEMENT, in *Law*, is used for the matching an heir, &c. in marriage, below his or her degree or condition, or against the rules of decency. The word is a compound of the privative particle *dis*, and *par*, "equal."

DISPART, in *Gunnery*, is the setting a mark upon the muzzle ring, or thereabouts, of a piece of ordnance, so that a sight line taken upon the top of the base ring against the touch-hole, by the mark set on or near the muzzle, may be parallel to the axis of the concave cylinder. The common way of doing this, is to take the two diameters of the base ring, and of the place where the dispart is to stand, and divide the difference between them into two equal parts, one of which will be the length of the dispart which is set on the gun with wax or pitch, or fastened there with a piece of twine or marlin. By means of an instrument it may be done with all possible nicety.

DISPATCH, a letter on some affair of state, or other business of importance, sent with care and expedition, by a courier express. The business of dispatches

Diseases of
Plants
||
Dispatch.

Dispauper
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Dispersion
of Mankind.

patches lies on the secretaries of state and their clerks. The king gives directions to his ministers abroad by dispatches. The word is also used for the packet or mail containing such letters. The French, during the reign of Louis XIV. had a *conseil des depeches*, "council of dispatches," held in the king's presence, at which the dauphin, the duke of Orleans, the chancellor, and four secretaries of state, assisted.

DISPAUPER. A person suing *in forma pauperis*, is said to be dispaupered, if, before the suit is ended, he has any lands or other estate fallen to him, or if he has any thing to make him lose his privilege. See the article *FORMA PAUPERIS*.

DISPENSARY, or **DISPENSATORY,** denotes a book containing the method of preparing the various kinds of medicines used in pharmacy. Such are those of Bauderon, Quercetan, Zwelfer, Charas, Bates, Mesue, Salmon, Lemery, Quincy, &c. but the latest and most esteemed, beside the London and Edinburgh Pharmacopœias, is the Edinburgh New Dispensatory, being an improvement upon that of Dr Lewis's.

DISPENSARY, or *Dispensatory*, is likewise a magazine or office for selling medicines at prime cost to the poor. The College of Physicians maintain three of these in London; one at the college itself in Warwick-lane; another in St Peter's alley, Cornhill; and a third in St Martin's lane. Dispensaries have also been established in several of the principal towns in Scotland and England; particularly in Edinburgh, Dundee, and Kello; as also at Newcastle upon Tyne.

DISPENSATION, in *Law*, the granting a license of doing some certain action that otherwise is not permitted.

DISPERSION, in general, signifies the scattering or dissipating something. Hence

DISPERSION, in *Optics*, the same with the divergency of the rays of light.

Point of DISPERSION, in *Dioptrics*, the point from which refracted rays begin to diverge, where their refraction renders them divergent.

DISPERSION of Inflammation, in *Medicine and Surgery*, is the removing the inflammation, and restoring the inflamed part to its natural state.

DISPERSION of Mankind, in the history of the world, was occasioned by the confusion of tongues, and took place in consequence of the overthrow of Babel at the birth of Peleg; whence he derived his name: and it appears by the account given of his ancestors, Gen. chap. xi. 10—16. to have happened in the 101st year after the flood according to the Hebrew chronology, and by the Samaritan computation in the 401st. However, various difficulties have been suggested by chronologers concerning the true era of this event. Sir John Marsham and others, in order to reconcile the Hebrew and Egyptian chronologies, maintain a dispersion of mankind before the birth of Peleg. Others, unable to find numbers sufficient for the plantation of colonies in the space of 101 years, according to the Hebrew computation, fix the dispersion towards the end of Peleg's life, thus following the computation of the Jews. Petavius assigns the 153d year after the flood; Cumberland the 180th; and Usher, though he generally refers it to the time of Peleg's birth, in one place assigns the 131st after the flood for this event.

Mr Shuckford supposes the dispersion to have been gradual, and to have commenced with the separation of some companies at the birth of Peleg, and to have been completed 31 years after. According to the calculation of Petavius, the number of inhabitants on the earth at the birth of Peleg amounted to 32,768: Cumberland makes them 30,000; Mr Mede states them at 7000 men, besides women and children: and Mr Whiston, who supposes that mankind now double themselves in 400 years, and that they doubled themselves between the deluge and the time of David in 60 years at a medium, when their lives were six or seven times as long as they have been since, by his computation produces about 2389; a number much too inconsiderable for the purposes of separating and forming distinct nations. This difficulty induced Mr Whiston to reject the Hebrew and to adopt the Samaritan chronology, as many others have done; which, by allowing an interval of 401 years between the flood and the birth of Peleg, furnishes, by the last-mentioned mode of computation, more than 240,000 persons.

As to the manner of the dispersion of the posterity of Noah from the plain of Shinar, it was undoubtedly conducted with the utmost regularity and order. The sacred historian informs us, that they were divided in their lands; every one according to his tongue, according to his family, and according to his nation, Gen. x. 5, 20, 31.; and thus, as Mr Mede observes, they were ranged according to their nations, and every nation was ranged by their families; so that each nation had a separate lot, and each family in every nation. The following abstract will serve to give a general idea of their respective settlements: Japhet Noah's eldest son, had seven sons; viz. Gomer, whose descendants inhabited those parts of Asia which lie upon the Ægean sea and Hellespont northward, containing Phrygia, Pontus, Bithynia, and a great part of Galatia. The Galatians, according to Josephus, were called *Gomeræi*; and the Cimmerii, according to Herodotus, occupied this tract of country; and from these Gomerians, Cimmerii, or Celts, Mr Camden derives our ancient Britons, who still retain the name *Cymro* or *Cymru*. Magog, the second son of Japhet, was probably the father of the Scythians on the east and north-east of the Euxine sea. Madai planted Media, though Mr Mede assigns Macedonia to his share. Javan was the father of the Grecians about Ionia, whose country lies along upon the Mediterranean sea; the radicals of Javan and Ionia being the same, יָוָן. To Tubal and Meshech belonged Cappadocia and the country which lies on the borders of the Euxine sea; and from them, migrating over Caucasus, it is supposed the Russians and Muscovites are descended. And Tiras occupied Thrace. The sons of Shem were five: Elam, whose country lay between the Medes and Mesopotamians, and was called by the Gentile writers *Elymais*; and Josephus calls the Elamites the founders of the Persians: Ashur, who was driven out of Shinar by Nimrod, afterwards settled in Assyria, and there built Nineveh, and other cities; Arphaxad, who gave name to the country which Ptolemy calls *Arraphaciis*, a province of Assyria, though Josephus makes him the father of the Chaldees; Lud who inhabited and gave name to the country of Lydia about

Dispersion of Mankind
||
Dispondee.

about the river Mæander, remarkable for its windings, in Asia Minor: and Aram, the father of the Syrians. Ham, the youngest son of Noah, had four sons; viz. Cush, whose posterity spread into the several parts of Arabia over the borders of the land of Edom, into Arabia Felix, up to Midian and Egypt; Mizraim, the father of them who inhabited Egypt and other parts of Africa; Phut, to whom Bochart assigns the remaining part of Africa, from the lake of Tritonides to the Atlantic ocean, called *Libya*: and Canaan, to whom belonged the land of Canaan, whence the Phenicians derived their origin.

Dr Bryant has advanced a new hypothesis on this subject, and supported it with his usual acuteness and learning. He maintains, that the dispersion as well as the confusion of tongues was local, and limited to the inhabitants of the province of Babel; that the separation and distribution recorded to have taken place in the days of Peleg, Gen. x. 25, 31, 32, which was the result of divine appointment, occasioned a general migration; and that all the families among the sons of men were concerned in it. The house of Shem, from which the Messiah was to spring, was particularly regarded in this distribution: the portion of his children was near the place of separation; they in general had Asia to their lot; as Japhet had Europe, and Ham the large continent of Africa. But the sons of Chus would not submit to the divine dispensation: they went off under the conduct of Nimrod, and seem to have been for a long time in a roving state. However, at last they arrived at the plains of Shinar; and having ejected Ashur and his sons, who were placed there by divine appointment, seized his dominions, and laid there the foundation of a great monarchy. But afterwards fearing lest they should be divided and scattered abroad, they built the tower of Babel as a land-mark to which they might repair; and probably to answer the purposes of an idolatrous temple, or high altar, dedicated to the host of heaven, from which they were never long to be absent. They only, viz. the sons of Chus or the Cushites, and their associates from other families, who had been guilty of rebellion against divine authority, and of wicked ambition and tyranny, were punished with the judgment of confounded speech through a failure in labial utterance, and of the dispersion recorded in Gen. x. 8, 9: in consequence of which they were scattered abroad from this city and tower, without any certain place of destination. The Cushites invaded Egypt or the land of Mizraim in its infant state, seized the whole country, and held it for some ages in subjection; and they extended likewise to the Indies and Ganges, and still farther into China and Japan. From them the province of Cushian or Goshen in Egypt derived its name. Here they obtained the appellation of *royal shepherds*; and when they were by force driven out of the country, after having been in possession of it for 260 or 280 years, the land which they had been obliged to quit was given to the Israelites, who were also denominated *shepherds*, but should not be confounded with the former or the antecedent inhabitants of Goshen.

DISPLAYED, in *Heraldry*, is understood of the position of an eagle, or any other bird, when it is erect, with its wings expanded or spread forth.

DISPONDEE, in the Greek and Latin poetry, a

double spondee or foot, consisting of four long syllables; as *mâëcênâtës, cônclüdëntës*.

DISPOSITION, in *Scots Law*, is that deed or writing which contains the sale or grant of any subject: when applied to heritable subjects, it in some cases gets the name of *charter*, which differs from a disposition in nothing else than a few immaterial forms.

DISPOSITION, in *Architecture*, the just placing the several parts of an edifice according to their nature and office. See ARCHITECTURE, N^o 31, &c.

DISPOSITION, in *Oratory*. See ORATORY, Part I.

DISPOSITION, in *Painting*. See PAINTING.

DISPOSITION, in human nature.—In every man there is something original, that serves to distinguish him from others, that tends to form a character, and to make him meek or fiery, candid or deceitful, resolute or timorous, cheerful or morose. This original bent, termed *disposition*, must be distinguished from a *principle*: the latter, signifying a law of human nature, makes part of the common nature of man; the former makes part of the nature of this or that man. *Propensity* is a name common to both; for it signifies a principle as well as a disposition.

DISQUISITION (from *dis*, and *quæro*, “I inquire”), an inquiry into the nature, kinds, and circumstances of any problem, question, or topic; in order to gain a right notion of it, and to discourse clearly about it.

DISSECTION, in *Anatomy*, the cutting up a body with a view of examining the structure and use of the parts. See ANATOMY.

Le Gendre observes, that the dissection of a human body, even dead, was held a sacrilege till the time of Francis I. And the same author assures us, he has seen a consultation held by the divines of Salamanca, at the request of Charles V. to settle the question whether or no it were lawful in point of conscience to dissect a human body in order to learn the structure thereof.

DISSEISIN, in *Law*, an unlawful dispossessing a person of his lands or tenements.

DISSEPIMENTUM, in *Botany*, the name by which Linnæus denominates the partitions which in dry seed-vessels, as capsules and pods (*siliqua*), divide the fruit internally into cells.

DISSENTERS, separatists from the service and worship of any established church.

DISSIDENTS, a denomination applied in Poland to those of the Lutheran, Calvinistic, and Greek profession. The king of Poland engages by the *pacta conventa* to tolerate them in the free exercise of their religion, but they have often had reason to complain of the violation of these promises. See (*History of*) POLAND.

DISSIMILITUDE, unlikeness or want of similitude. See the article RESEMBLANCE and *Dissimilitude*.

DISSIMULATION, in morals, the act of dissimbling, by fallacious appearances, or false pretensions.

Good princes regard dissimulation as a necessary vice; but tyrants consider it as a virtue.

It is apparent that secrecy is often necessary, to oppose those who may be willing to circumvent our lawful intentions. But the necessity of precaution would become very rare, were no enterprises to be formed, but such as could be avowed openly. The frankness with which we could then act, would engage

Disposition
||
Dissimulation.

Dissipation engage people in our interests. Marshal Biron would
 || have saved his life, by dealing ingenuously with Hen-
Dissolution. ry IV.

With respect to dissimulation, three things are to be observed: 1. That the characters of those are not to be esteemed, who are reserved and cautious without distinction. 2. Not to make secrets of unimportant matters. 3. To conduct ourselves in such manner, as to have as few secrets as possible.

DISSIPATION, in *Physics*, an insensible loss or consumption of the minute parts of the body; or that flux whereby they fly off, and are lost.

Circle of DISSIPATION, in *Optics*, is used for that circular space upon the retina, which is taken up by one of the extreme pencils of rays issuing from an object.

DISSOLVENT, in general, whatever dissolves or reduces a solid body into such minute parts as to be sustained in a fluid.

Universal DISSOLVENT. See the article ALKALINE.

DISSOLUTION, in *Physics*: a discontinuation, or analysis, of the structure of a mixed body; whereby, what was one, and contiguous, is divided into little parts, either homogenous or heterogeneous.

Dissolution, then, is a general name for all reductions of concrete bodies into their smallest parts, without any regard either to solidity or fluidity: though in the usual acceptation of the word among authors, it is restrained to the reduction of solid bodies into a state of fluidity; which is more properly expressed by *solution*, as a branch of *dissolution*.

According to the opinion of Fr. Tertius de Lanis, Boerhaave, and some other learned men, the power or faculty of dissolving is lodged in fire alone.

According to this hypothesis, other fluids commonly supposed dissolvents, only produce their effect by means of the fiery spicula they abound with: and even air, which is judged a powerful menstruum, owes all its force to the rays of light diffused therein.

Sir Isaac Newton accounts for all dissolutions, and the several phenomena thereof, from the great principle of attraction; and, in effect, the phenomena of dissolution furnish a great part of the arguments and considerations whereby he proves the reality of that principle. The following is a specimen of that great author's way of philosophizing on the subject of dissolution.

When salt of tartar dissolves by lying in a moist place, is not this done by an attraction between the particles of the salt of tartar and those of the water which float in the air in form of vapours? and why does not common salt, or saltpetre, or vitriol, do the like, but for want of such an attraction? And when aquafortis, or spirit of vitriol, poured on steel filings, dissolves the filings with a great heat and ebullition; is not this heat and ebullition effected by a violent motion of the parts? and does not that motion argue, that the acid parts of the liquor rush towards the parts of the metal with violence, and run forcibly into its pores; till, getting between the utmost particles and the main mass of metal, they loosen them therefrom, and set them at liberty to float off into the water? When a solution of iron in aquafortis dissolves lapis calaminaris, and lets go the iron; or a solution of copper dissolves iron immersed in it, and lets go the copper; or a solution of

mercury in aquafortis poured on iron, copper, tin, or Dissolution: lead, dissolves the metal, and lets go the mercury; does not this argue, that the acid particles of the aquafortis are attracted more strongly by the lapis calaminaris than by iron; by iron than by copper; by copper than by silver; and by iron, tin, copper, and lead, than by mercury? And is it not for the same reason, that iron requires more aquafortis to dissolve it than copper, and copper more than the other metals; and that of all metals iron is dissolved most easily, and is most apt to rust; and next after iron, copper? When aquafortis dissolves silver, and not gold; and aquaregia dissolves gold, and not silver; may it not be said, that aquafortis is subtiler enough to penetrate the pores of gold as well as of silver, but wants the attractive force to give it entrance; and the same of aquaregia and silver? And when metals are dissolved in acid menstrooms, and the acids in conjunction with the metal act after a different manner, so as that the taste of the compound is milder than that of the simples, and sometimes a sweet one; is it not because the acids adhere to the metallic particles, and thereby lose much of their activity? And if the acid be in too small a proportion to make the compound dissoluble in water; will it not, by adhering strongly to the metal, become inactive, and lose its taste, and the compound become a tasteless earth? for such things as are not dissoluble by the moisture of the tongue are insipid."

Dr Freind gives us a mechanical account of dissolution, in the instance of salt dissolved in water, which is the most simple operation that falls under this head. This motion he ascribes to that attractive force, which is so very extensive in natural philosophy, that there is no kind of matter but what is under its influence. It may be observed, says he, that the corpuscles of salts, which are the most simple of any, are withal very minute, and for their bulk very solid; and therefore exert a very strong attractive force, which, *ceteris paribus*, is proportional to the quantity of matter. Hence it comes to pass, that the particles of water are more strongly attracted by the saline particles than they are by one another: the particles of water, therefore, cohering but loosely, and being easily moveable, approach the corpuscles of salts, and run, as it were, into their embraces: and the motion of them is quicker or slower, according to their less or greater distances; the attractive force in all bodies being strongest at the point of contact. Therefore, if salt be thrown into the middle of a dish full of water, we shall find the aqueous particles which are in the middle of the dish sharp and pungent to the taste, but the water upon the sides of the vessel almost insipid; so that, when such a motion once arises, the aqueous particles are carried with an equal force towards the salts, and the moment of them is to be estimated from the ratio of their weight and celerity conjunctly. By the force of this impulse, they open to themselves a passage into the pores of the salts, which are very numerous; and at length so break and divide their texture, that all cohesion of their parts is destroyed: hereupon, being separated, and removed to a convenient distance from one another, they are dispersed, and float here and there about the water.

The simple dissolution of saline substances of every kind in water, may indeed be plausibly enough explained

Diffolution. plained on the hypothesis of attraction; but where the diffolution is attended with heat, the emission of vapour, &c. it seems necessary to seek for some other principle than mere attraction to solve these phenomena. When diluted oil of vitriol, for instance, is poured upon iron filings, a great quantity of vapour arises, which, if it was attempted to be confined, would certainly break the containing vessel. It is impossible to imagine any connexion between attraction and the emission of a vapour; and what is still more unaccountable, this vapour is inflammable, though neither the oil of vitriol nor the iron are so by themselves. Another very strong objection against the hypothesis of attraction may be derived from the phenomena of metallic dissolutions in general; for they do not dissolve completely in acids, as salts do in water. By dissolution they are always decomposed, and cannot be recovered in their proper form without a good deal of trouble. One metal, indeed, will very often precipitate another from an acid in its metalline form; but this is attended with the decomposition of the second metal; so that this can by no means be reckoned a fair experiment. But, whatever other method is used, the dissolved metal is always recovered in form of an earthy powder, that we could scarcely imagine capable of ever becoming malleable, and assuming the splendid appearance of a metal. Now, if there was a strong attraction between this and the acid, we might very justly conjecture, that the dissolution happened by means of that attraction; but so far from this, after a metal has been dissolved by any acid, and the calx has been separated from it, it is always difficult, and very often impossible, to procure a dissolution of the calx in the same acid. The action of the acid in this case seems not unlike that of fire upon wood or any other inflammable substance. Dry wood, thrown into the fire, burns and flames with great violence; but the same wood, reduced to ashes, instead of burning, extinguishes fire already kindled. In like manner, a piece of clear metal thrown into an acid, dissolves with great violence: but the same metal, deprived of its phlogistic principle, and reduced to a calx, cannot be acted upon by acids, in whatever manner they are applied: at least, not without the greatest difficulty; and the more perfect the calx is, i. e. the more completely it is deprived of its inflammable principle, the greater the difficulty is of combining it afterwards with an acid.

Another thing in which the dissolution of metals by an acid resembles the burning of combustibles by fire, is, that in both cases there is a separation of the principle of inflammability. In the case of oil of vitriol and iron filings, this is exceedingly obvious; for there the vapour which arises from the mixture takes fire, and explodes with great vehemence. In all other cases, it is very easily proved; for the calx is always capable of being revived into metal by the addition of any substance containing phlogiston. The calces prepared by fire, and by precipitation from acids, also resemble

one another so much, that in many cases they are scarce to be distinguished.

These considerations seem to favour the hypothesis of Dr Boerhaave; and much more does the following, namely, that almost all metallic solutions produce some degree of sensible heat. In some metals this is very considerable; but the greatest heat producible by an aqueous solution of any substance is by dissolving quicklime in the nitrous acid. The heat here greatly exceeds that of boiling water. In some dissolutions of inflammable matters by a mixture of the vitriolic and nitrous acids, the heat is so great, that the whole mixture takes fire almost instantaneously. Hence the Boerhaavians think they have sufficient grounds to conclude, that fire alone is the agent by which all dissolutions are performed.

These appearances have also been explained on the principles of attraction; and it has been said, that the heat, &c. were owing to nothing but the violent action of the particles of the acid and metal upon each other (A).

DISSONANCE, in *Music*. See **DISCORD**.

DISSYLLABLE, among grammarians, a word consisting only of two syllables: such are nature, science, &c.

DISTAFF, an instrument about which flax is tied in order to be spun.

DISTANCE, in general, an interval between two things, either with regard to time or place. See **METAPHYSICS**.

Accessible DISTANCES, in *Geometry*, are such as may be measured by the chain. See **GEOMETRY**.

Inaccessible DISTANCES, are such as cannot be measured by the chain, &c. by reason of some river, or the like, &c. which obstructs our passing from one object to another. See **GEOMETRY**.

DISTANCE, in *Astronomy*. The distance of the sun, planets, and comets, is found only from their parallax, as it cannot be found either by eclipses or their different phases: for from the theory of the motions of the earth and planets we know, at any time, the proportion of the distances of the sun and planets from us; and the horizontal parallaxes are in a reciprocal proportion to these distances. See **ASTRONOMY**.

DISTASTE properly signifies an aversion or dislike to certain foods; and may be either constitutional, or owing to some disorder of the stomach.

DISTEMPER, among *Physicians*, the same with **DISEASE**.

DISTEMPER, in *Painting*, a term used for the working up of colours with something besides water or oil. If the colours are prepared with water, that kind of painting is called *limning*; and if with oil, it is called *painting in oil*, and simply *painting*. If the colours are mixed with size, whites of eggs, or any such proper glutinous or unctuous matter, and not with oil, then they say it is done in *distemper*.

DISTENSION, in general, signifies the stretching or extending a thing to its full length or breadth.

DISTICH,

(A) We have retained these observations, as an instance of the speculations and opinions concerning these subjects before the discovery of the present theory of Chemistry with regard to the oxidation of metals and the decomposition of water.

Distich
||
Distillation

DISTICH, a couplet of verses making a complete sense. Thus hexameter and pentameter verses are disposed in distichs. There are excellent morals in Cato's distichs.

DISTICHIASIS, in *Surgery*, a disease of the eyelids, when under the ordinary eyelashes there grows another extraordinary row of hair, which frequently eradicates the former, and, pricking the membrane of the eye, excites pain, and brings on a defluxion.—It is cured by pulling out the second row of hairs with nippers, and cauterizing the pores out of which they issued.

DISTILLATION. For the principles of this process, see *CHEMISTRY Index*.

I
Difference between distillers and rectifiers.

The objects of distillation, considered as a trade distinct from the other branches of chemistry, are chiefly spirituous liquors, and those waters impregnated with the essential oil of plants, commonly called *simple distilled waters*. The distilling compound spirits and waters is reckoned a different branch of business, and they who deal in that way are commonly called *rectifiers*. This difference, however, though it exists among commercial people, is not at all founded in the nature of the thing; compound spirits being made, and simple spirits being rectified, by the very same operations by which they are at first distilled, or with at least very trifling operations.

2
Spirits perfectly flavourless, how obtained.

The great object with every distiller ought to be, to procure a spirit perfectly flavourless, or at least as well freed from any particular flavour as may be; and in this country the procuring of such a spirit is no easy matter. The only materials for distillation that have been used in large quantity, are malt and molasses or treacle. Both of these, especially the first, abound with an oily matter, which, rising along with the spirit, communicates a disagreeable flavour to it, and from which it can scarce be freed afterwards by any means whatever.—Some experiments have been made upon carrots, as a subject for the distillers; but these are not as yet sufficiently decisive; nor is it probable, that a spirit drawn from carrots would be at all devoid of flavour, more than one drawn from malt.—To dissipate the essential oil which gives the disagreeable flavour to malt spirits, it has been proposed to inspissate the wort into a rob, or thin extract like a syrup; afterwards to thin it with water, and ferment it in the usual manner. This certainly promises great success; there is no subject we know of that is possessed of any kind of essential oil, but what will part with it by distillation or by long boiling. The inspissating of the wort, however, does not seem to be either necessary or safe to be attempted; for, in this case, there is great danger of its contracting an empyreuma, which could never be remedied. The quantity lost by evaporation, therefore, might be occasionally added, with an equal certainty of dissipating the obnoxious oil. Whether the yield of spirit would be as great in this case as in the other, is a question that can by no means be discussed without further experiments. According to a theory adopted by some distillers, namely, that essential oils are convertible into ardent spirits; and that the more oily any subject is, the greater quantity of spirit is obtainable from it; the practice of dissipating the oil before fermentation must certainly be a loss. But we are too little acquainted with the composition of vinous spirits, to have any just

3
Essential oil by some thought convertible into spirit.

foundation for adopting such theories. Besides, it is certain, that the quantity of ardent spirit producible from any substance, malt for instance, very greatly exceeds the quantity of essential oil which can by any means be obtained from the same; nor do we find that those substances, which abound most in essential oil, yield the greatest quantity of spirits. So far from this, fine sugar, which contains little or no essential oil, yields a great deal of ardent spirit.

Distillation.

Previous to the operation of distilling, those of brewing and fermentation are necessary; but as these are fully treated of under the article **BREWING**, we shall here only observe, that unless the boiling of the wort, before fermentation, is found to dissipate the essential oil, so as to take away the flavour of the malt, there is no necessity for being at the trouble of that operation. The wort may be immediately cooled and fermented, —The fermentation ought always to be carried on as slowly as possible, and performed in vessels closely stopped; only having at the bung a valve pressed down by a spring, which will yield with less force than is sufficient to burst the vessel. It should even be suffered to remain till it has become perfectly fine and transparent; as by this means the spirit will not only be superior in quantity, but also in fragrance, pungency, and vinosity, to that commonly produced.

4
Directions concerning fermentation.

With regard to performing the operation of distilling, there is only one general rule that can be given, namely, to let the heat, in all cases, be as gentle as possible. Accidents will be effectually prevented by having the worm of a proper wideness, and by rectifying the spirits in a water bath; which, if sufficiently large, will perform the operation with all the despatch requisite for the most extensive business. The vessel in which the rectification is performed, ought to be covered with water up to the neck, and to be loaded with lead at the bottom, so that it may sink in the water. Thus the operation will go on as quickly as if it was on an open fire, and without the least danger of a miscarriage, nor will it ever be necessary to make the water in the bath come to a boiling heat.

5
For distillation.

As the end of rectification is to make the spirit *clean* as well as *strong*, or to deprive it of the essential oil as well as the aqueous part, it will be proper to have regard to this event in the first distillation. For this purpose, the spirit, as it first comes over, should be received into a quantity of cold water; as by this means the connexion betwixt it and the oily matter will be considerably lessened. For the same reason, after it has been once rectified in the water bath, it should be again mixed with an equal quantity of water, and distilled a second time. Thus the spirit will be freed from most of the oily matter, even though it hath been very much impregnated with it at first. It is necessary to observe, however, that by using such a quantity of water, a considerable part of the water will be left in the residuum of each rectification. All these residuums, therefore, must be mixed together, and distilled on an open fire, with a brisk heat, that the remainder of the spirit may be got out.

6
For rectification.

After the spirit has been distilled once or twice in this manner from water, it may be distilled in a water bath without any addition; and this last rectification will free it from most of the water it contains. But if it is required to be highly dephlegmated, a quantity of pure

Distillation. pure and dry salt of tartar must be added. The attraction betwixt this salt and water is greater than that betwixt water and spirit of wine. The salt therefore imbibes the water contained in the spirit, and sinks with it to the bottom. The spirit, by a single distillation, may then be rendered perfectly free from water; but there is great danger of some of the alkaline salt rising along with it, and impregnating it with what is called an *urinous flavour*. When this once happens, it is impossible to be remedied; and the only way to prevent it is, to make the heat with which the spirit is distilled as gentle as possible. It hath been proposed, indeed, to prevent the rising of any thing alkaline, by the admixture of some calcined vitriol, sal catharticus amarus, or other imperfect neutral salt; but this can scarce be supposed to answer any good purpose, as the alkali unites itself with the oily matter of the spirit, and forms a kind of saponaceous compound, which is not so easily affected by the acid of the vitriol or other salt, especially as these salts will not dissolve in the spirit itself.

⁷ Of imitating foreign spirits. One very great desideratum among the distillers of this country is, a method of imitating the foreign spirits, brandy, rum, gin, &c. to a tolerable degree of perfection; and notwithstanding the many attempts that are daily made for this purpose, the success in general hath been but very indifferent. On this subject, Mr Cooper has the following observations, in his Complete System of Distillation: which, as they are applicable to all other spirits as well as brandy, we shall here transcribe.—“The general method of distilling brandies in France need not be formally described, as it differs in nothing from that practised here in working from malt wash or molasses; nor are they in the least more cleanly or exact in the operation. They only observe more particularly to throw in a little of the natural ley into the still along with the wine, as finding this gives their spirit the flavour for which it is generally admired abroad.—But, though brandy is extracted from wine, experience tells us, that there is a great difference in the grapes from which the wine is made. Every soil, every climate, every kind of grapes, varies with regard to the quantity and quality of the spirits extracted from them. There are some grapes which are only fit for eating; others for drying, as those of Damascus, Corinth, Provence, and Avignon, but not fit to make wine.—Some wines are very proper for distillation, and others much less so. The wines of Languedoc and Provence afford a great deal of brandy by distillation, when the operation is performed on them in their full strength. The Orleans wines, and those of Blois, afford yet more; but the best are those of the territories of Cogniac and Andaye; which are, however, in the number of those the least drunk in France. Whereas those of Burgundy and Champagne, though of a very fine flavour, are improper, because they yield but very little in distillation.

“It must also be farther observed, that all the wines for distillation, as those of Spain, the Canaries, of Alicante, of Cyprus, of St Peres, of Toquet, of Grave, of Hungary, and others of the same kind, yield very little brandy by distillation; and consequently would cost the distiller considerably more than he could sell it for. What is drawn from them is indeed very good,

Vol. VII. Part I.

always retaining the saccharine quality and rich flavour of the wine from whence it is drawn; but as it grows old, this flavour often becomes aromatic, and is not agreeable to all palates.

“Hence we see that brandies always differ according as they are extracted from different species of grapes. Nor would there be so great a similitude as there is between the different kinds of French brandies, were the strongest wines used for this purpose; but this is rarely the case; the weakest and lowest flavoured wines only are distilled for their spirit, or such as prove absolutely unfit for any other use.

“A large quantity of brandy is distilled in France during the time of the vintage; for all those poor grapes that prove unfit for wine, are usually first gathered, pressed, their juice fermented, and directly distilled. This rids their hands of their poor wines at once, and leaves their casks empty for the reception of better. It is a general rule with them not to distil wine that will fetch any price as wine; for, in this state, the profits upon them are vastly greater than when reduced to brandies. This large stock of small wines, with which they are almost overrun in France, sufficiently accounts for their making such vast quantities of brandy in that country, more than in others which lie in warmer climates, and are much better adapted to the production of grapes.—Nor is this the only fund of their brandies; for all the wine that turns eager, is also condemned to the still; and, in short, all that they can neither export nor consume at home, which amounts to a large quantity; since much of the wine laid in for their family provision is so poor as not to keep during the time of spending.

“Hence many of our English spirits, with proper management, are convertible into brandies that shall hardly be distinguished from the foreign in many respects, provided the operation be neatly performed.

“The common method of rectifying spirits from alkaline salts, destroys their vinosity, and in its stead introduces an urinous or lixivious taste. But as it is absolutely necessary to restore, or at least to substitute in its room, some degree of vinosity, several methods have been proposed, and a multitude of experiments performed, in order to discover this great desideratum. But none has succeeded equal to the spirit of nitre; and accordingly this spirit, either strong or dulcified, has been used by most distillers to give an agreeable vinosity to their spirits. Several difficulties, however, occur in the method of using it; the principal of which is, its being apt to quit the liquor in a short time, and consequently depriving the liquor of that vinosity it was intended to give. In order to remove this difficulty, and prevent the vinosity from quitting the goods, the dulcified spirit of nitre, which is much better than the strong spirit, should be prepared by a previous digestion, continued for some time, with alcohol; the longer the digestion is continued, the more intimately will they be blended, and the compound rendered the milder and softer.

After a proper digestion, the dulcified spirit should be mixed with the brandy, by which the vinosity will be intimately blended with the goods, and not disposed to fly off for a very considerable time.—No general rule can be given for the quantity of this mineral acid requisite to be employed; because different proportions

Distillation of it are necessary in different spirits. It should, however, be carefully attended to, that though a small quantity of it will undoubtedly give an agreeable viscosity, resembling that naturally found in the fine subtle spirits drawn from wines, yet an over large dose of it will not only cause a disagreeable flavour, but also render the whole design abortive, by discovering the imposition. Those, therefore, who endeavour to cover a foul taste in goods by large doses of dulcified spirit of nitre, will find themselves deceived.

“ But the best, and indeed the only method of imitating French brandies to perfection, is by an essential oil of wine; this being the very thing that gives the French brandies their flavour. It must, however, be remembered, that, in order to use even this ingredient to advantage, a pure tasteless spirit must first be procured; for it is ridiculous to expect that this essential oil should be able to give the agreeable flavour of French brandies to our fulsome malt spirit, already loaded with its own nauseous oil, or strongly impregnated with a noxious taste from the alkaline salts used in rectification. How a pure insipid spirit may be obtained, has already been considered; it only therefore remains to show the method of procuring this essential oil of wine, which is this:

“ Take some cakes of dry wine lees, such as are used by our hatters; dissolve them in six or eight times their weight of water; distil the liquor with a slow fire, and separate the oil with a separating glass; reserving for the nicest uses only that which comes over first, the succeeding oil being coarser and more resinous.—Having procured this fine oil of wine, it may be mixed into a quintessence with pure alcohol; by which means it may be preserved a long time fully possessed of all its flavour and virtues; but, without such management, it will soon grow resinous and rancid.

“ When a fine essential oil of wine is thus procured, and also a pure and insipid spirit, French brandies may be imitated to perfection, with regard to the flavour. It must, however, be remembered, and carefully adverted to, that the essential oil be drawn from the same kind of lees as the brandy to be imitated was procured from; we mean, in order to imitate Cogniac brandy, it will be necessary to distil the essential oil from Cogniac lees; and the same for any other kind of brandy. For, as different brandies have different flavours, and as these flavours are entirely owing to the essential oil of the grape, it would be preposterous to endeavour to imitate the flavour of Cogniac brandy with an essential oil procured from the lees of Bourdeaux wine.—When the flavour of the brandy is well imitated by a proper dose of the essential oil, and the whole reduced into one simple and homogeneous fluid, other difficulties are still behind: The flavour, though the essential part, is not, however, the only one; the colour, the proof, and the softness, must also be regarded, before a spirit that perfectly resembles brandy can be procured. With regard to the proof it may be easily hit, by using a spirit rectified above proof: which, after being intimately mixed with the essential oil of wine, may be let down to a proper standard with fair water. And the softness may, in a great measure, be obtained by distilling and rectifying the spirit with a gentle fire: and what is wanting of this criterion in the liquor when first made, will be supplied by time; for it must be remem-

bered, that it is time alone that gives this property to French brandies; they being at first acrid, foul, and fiery. But, with regard to the colour, a particular method is required to imitate it to perfection.

“ The art of colouring spirits owes its rise to observations on foreign brandies. A piece of French brandy that has acquired, by age a great degree of softness and ripeness, is observed at the same time to have acquired a yellowish brown colour; and hence our distillers have endeavoured to imitate this colour in such spirits as are intended to pass for French brandy. And in order to this, a great variety of experiments have been made on different substances. But in order to know a direct and sure method of imitating this colour to perfection, it is necessary we should be informed whence the French brandies themselves acquire their colour. This discovery is very easily made. The common experiment of trying whether brandy will turn blackish with a solution of iron, shows that the colour is owing to some of the resinous matter of the oak cask dissolved in the spirit. There can be no difficulty, therefore, in imitating this colour to perfection. A small quantity of the extract of oak, or the shavings of that wood, properly digested, will furnish us with a tincture capable of giving the spirit any degree of colour required. But it must be remembered, that as the tincture is extracted from the cask by brandy, that is, alcohol and water, it is necessary to use both in extracting the tincture; for each of these dissolves different parts of the wood. Let, therefore, a sufficient quantity of oak shavings be digested in strong spirit of wine, and also at the same time other oak shavings be digested in water; and when the liquors have acquired a strong tincture from the oak, let both be poured off from the shavings into different vessels, and both placed over a gentle fire till reduced to the consistence of treacle. In this condition let the two extracts be intimately mixed together; which may be effectually done by adding a small quantity of loaf-sugar, in fine powder, and rubbing the whole well together. By this means a liquid essential extract of oak will be procured, and always ready to be used as occasion shall require.

“ There are other methods in use for colouring brandies; but the best, besides the extract of oak above mentioned, are treacle and burnt sugar. The treacle gives the spirit a fine colour, nearly resembling that of French brandy; but as its colour is dilute, a large quantity must be used; this is not, however, attended with any bad consequences; for notwithstanding the spirit is really weakened, by this addition, yet the bubble proof, the general criterion of spirits, is greatly mended by the tenacity imparted to the liquor by the treacle. The spirit also acquires from the mixture a sweetish or luscious taste, and a fulness in the mouth; both which properties render it very agreeable to the palates of the common people, who are in fact the principal consumers of these spirits. A much smaller quantity of burnt sugar than of treacle will be sufficient for colouring the same quantity of spirits: the taste is also very different; for instead of the sweetness imparted by the treacle, the spirit acquires from the burnt sugar an agreeable bitterness, and by that means recommends itself to nicer palates, which are offended with a luscious spirit. The burnt sugar is prepared by dissolving a proper quantity of sugar in

Distillation. a little water, and scorching it over the fire till it acquires a black colour. Either treacle or burnt sugar will nearly imitate the genuine colour of old French brandy; but neither of them will succeed when put to the test of the vitriolic solution.

“The spirit distilled from molasses or treacle is very clean or pure. It is made from common treacle dissolved in water, and fermented in the same manner as the wash for the common malt spirit. But if some particular art is not used in distilling this spirit, it will not prove so vinous as malt spirit, but more flat and less pungent and acid, though otherwise much cleaner tasted, as its essential oil is of a much less offensive flavour. Therefore, if good fresh wine lees, abounding in tartar, be added and duly fermented with the molasses, the spirit will acquire a much greater vinosity and briskness, and approach much nearer to the nature of foreign spirits. Where the molasses spirit is brought to the common proof strength, if it is found not to have a sufficient vinosity, it will be very proper to add some good dulcified spirit of nitre; and if the spirit be clean worked, it may, by this addition only, be made to pass on ordinary judges for French brandy. Great quantities of this spirit are used in adulterating foreign brandy, rum, and arrack. Much of it is also used alone in making cherry brandy and other drams by infusion; in all which many, and perhaps with justice, prefer it to foreign brandies. Molasses, like all other spirits, is entirely colourless when first extracted; but distillers always give it as nearly as possible the colour of foreign spirits.”

11
Rum, how imitated.

If these principles hold good, the imitation of foreign spirits of all kinds must be an easy matter. It will only cost the procuring of some of those substances from which the spirit is drawn; and distilling this with water, the essential oil will always give the flavour desired. Thus, to imitate Jamaica rum, it will only be necessary to procure some of the tops, or other useless parts, of the sugar canes; from which an essential oil being drawn, and mixed with clean molasses spirit, will give it the true flavour. The principal difficulty must lie in procuring a spirit totally, or nearly free of all flavour of its own. The spirit drawn from the refuse of a sugar-house is by our author commended as superior to that drawn from molasses: though even this is not entirely devoid of some kind of flavour of its own; nor indeed is that drawn from the best refined sugar entirely flavourless. It is very probable, therefore, that to procure an absolutely flavourless spirit is impossible. The only method, therefore, of imitating foreign spirits is, by choosing such materials as will yield a spirit flavoured as much like them as possible. The materials most recommended by our author in this case, and probably the best that can be used, are raisins. Concerning these he gives the following directions: “In order to extract this spirit, the raisins must be infused in a proper quantity of water, and fermented in the manner already directed. When the fermentation is completed, the whole is to be thrown into the still, and the spirit extracted by a strong fire. The reason why we here direct a strong fire, is, because by that means a greater quantity of the essential oil will come over the helm with the spirit, which will render it fitter for the distiller’s purpose: for this spirit is commonly used to

12
Raisins the best material for procuring pure spirit.

mix with common malt goods: and it is surprising how far it will go in this respect, ten gallons of it being often sufficient to give a determining flavour and agreeable vinosity to a whole piece of malt spirits. It is therefore well worth the distiller’s while to endeavour at improving the common method of extracting spirits from raisins; and perhaps the following hint may merit attention. When the fermentation is completed, and the still charged with fermented liquor as above directed, let the whole be drawn off with as brisk a fire as possible; but, instead of the cask or can generally used by distillers for a receiver, let a large glass, called by chemists a *separating glass*, be placed under the nose of the worm, and a common receiver applied to the spout of the separating glass: by this means the essential oil will swim upon the top of the spirit, or rather low wine, in the separating glass, and may be easily preserved at the end of the operation.—The use of this limpid essential oil is well known to distillers; for in this resides the whole flavour, and consequently may be used to the greatest advantage in giving that distinguishing taste and true vinosity to the common malt spirits. After the oil is separated from the low wine, the liquor may be rectified in *balneo marie* into a pure and almost tasteless spirit, and therefore well adapted to make the finest compound cordials, or to imitate or mix with the finest French brandies, arracks, &c. In the same manner a spirit may be obtained from cyder. But as its particular flavour is not so desirable as that obtained from raisins, it should be distilled in a more gentle manner, and carefully rectified according to the directions we have already given.”

Distillation.

These directions may suffice for the distillation of any kind of simple spirits. The distillation of compound ones depends on the observation of the following general rules, which are very easy to be learned and practised.

13
Directions for distilling compound spirits.

1. The artist must always be careful to use a well cleansed spirit, or one freed from its own essential oil. For, as a compound water is nothing more than a spirit impregnated with the essential oil of the ingredients, it is necessary that the spirit should have deposited its own.

2. Let the time of previous digestion be proportioned to the tenacity of the ingredients, or the ponderosity of their oil.

3. Let the strength of the fire also be proportioned to the ponderosity of the oil intended to be raised with the spirit.

4. Let only a due proportion of the finest parts of the essential oil be united with the spirit; the grosser and less fragrant parts of the oil not giving the spirit so agreeable a flavour, and at the same time rendering it unsightly. This may in a great measure be effected by leaving out the faints, and making up to proof with fine soft water in their stead.

A careful observation of these four rules will render this part of distillation much more perfect than it is at present. Nor will there be any occasion for the use of burnt alum, white of eggs, isinglass, &c. to fine down cordial waters; for they will presently be fine, sweet, and pleasant tasted, without any further trouble. We shall now subjoin particular receipts for making some

Distillation. of those compound waters, or spirits, that are most commonly to be met with, and are in the most general estimation.

14
Receipts for
a number of
compound
spirits.

Strong Cinnamon Water. Take eight pounds of fine cinnamon bruised, 17 gallons of clean rectified spirit, and two gallons of water. Put them into your still, and digest them 24 hours with a gentle heat; after which draw off 16 gallons with a pretty strong heat.—A cheaper spirit, but of an inferior quality, may be obtained by using cassia lignea instead of cinnamon. If you would dulcify your cinnamon water, take double-refined sugar in what quantity you please; the general proportion is about two pounds to a gallon; and dissolve it in the spirit, after you have made it up proof with clean water. One general caution is here necessary to be added; namely, that near the end of the operation, you carefully watch the spirit as it runs into the receiver, in order to prevent the faints from mixing with the goods. This you may discover by often catching some of it as it runs from the worm in a glass, and observing whether it is fine and transparent; for as soon as ever the faints begin to rise, the spirit will have an azure or bluish cast. As soon as this alteration in colour is perceived, the receiver must be immediately changed; for if the faints are suffered to mix themselves with the rest, the value of the goods will be greatly lessened. Here we may observe, that the distillers call such goods as are made up proof, *double goods*; and those below proof, *single*.

Clove water. Take of cloves bruised, four pounds; pimento, or all-spice, half a pound; proof spirit, 16 gallons. Digest the mixture 12 hours in a gentle heat, and then draw off 15 gallons with a pretty brisk fire. The water may be coloured red, either by a strong tincture of cochineal, alkanet, or corn poppy flowers. It may be dulcified at pleasure with double-refined sugar.

Lemon water. Take of dried lemon peel, four pounds; clean proof spirit, 10 gallons and a half, and one gallon of water. Draw off ten gallons by a gentle fire, and dulcify with fine sugar.

Citron water. Take of dry yellow rinds of citrons, three pounds; of orange peel, two pounds; nutmegs, bruised, three quarters of a pound; clean proof spirit, ten gallons and a half; water, one gallon. Digest with a gentle heat; then draw off ten gallons in balneo mariz, and dulcify with fine sugar.

Aniseed water. Take aniseed bruised, two pounds; proof spirit, 12 gallons and a half; water, one gallon. Draw off ten gallons with a moderate fire.—This water should never be reduced below proof; because the large quantity of oil with which it is impregnated, will render the goods milky and foul when brought down below proof. But if there is a necessity for doing this, their transparency may be restored by filtration.

Orange water. Take of the yellow part of fresh orange peel, five pounds; clean proof spirit, ten gallons and a half; water, two gallons. Draw off ten gallons with a gentle fire.

Cedrat water. The cedrat is a species of citron, and very highly esteemed in Italy, where it grows naturally. The fruit is difficult to be procured in this country; but as the essential oil is often imported from Italy, it may be made with it according to the fol-

lowing receipt.—Take of the finest loaf sugar reduced to powder, a quarter of a pound; put it into a glass mortar, with 120 drops of the essence of cedrat; rub them together with a glass pestle; and put them into a glass alembic, with a gallon of fine proof spirits and a quart of water. Place the alembic in balneo mariz, and draw off one gallon, or till the faints begin to rise, and dulcify with fine sugar. This is reckoned the finest cordial yet known; it will therefore be necessary to be particularly careful that the spirit is perfectly clean and, as much as possible, freed from any flavour of its own.

Orange Cordial water, or Eau de Bigarade. Take the outer or yellow part of the peels of 14 bigarades, (a kind of orange); half an ounce of nutmegs, a quarter of an ounce of mace, a gallon of fine proof spirit, and two quarts of water. Digest all these together two days in a close vessel; after which draw off a gallon with a gentle fire, and dulcify with fine sugar. This cordial is greatly esteemed abroad, but is not so well known in this country.

Ros Solis. Take of the herb called *Ros Solis*, picked clean, four pounds; cinnamon, cloves, and nutmegs, of each three ounces and a half; marigold flowers, one pound; caraway seeds, ten ounces; proof spirit, ten gallons; water, three gallons. Distil with a pretty strong fire, till the faints begin to rise. Then take of liquorice root sliced, half a pound; raisins stoned, two pounds; red saunders, half a pound: digest these three days in two quarts of water; then strain out the clear liquor, in which dissolve three pounds of fine sugar, and mix it with the spirit drawn by distillation.

Ujquebaugh. Take nutmegs, cloves, and cinnamon, of each two ounces; the seeds of anise, caraway, and coriander, of each four ounces; of liquorice root sliced, half a pound. Bruise the seeds and spices; and put them, together with the liquorice, into the still with 11 gallons of proof spirits, and two gallons of water. Distil with a pretty brisk fire till the faints begin to rise. But, as soon as the still begins to work, fasten to the nose of the worm two ounces of English saffron tied up in a cloth, that the liquor may run through it, and extract all its tincture; and in order to this, you should frequently press the saffron with your fingers. When the operation is finished, dulcify your goods with fine sugar.

Ratafia—Is a liquor prepared from different kinds of fruits, and is of different colours according to the fruits made use of. Of red ratafia there are three kinds, the fine, the dry or sharp, and the common. The fruits most proper for making red ratafia, are the black heart cherry, the common red cherry, the black cherry, the mery or honey cherry, the strawberry, the raspberry, the red gooseberry, and the mulberry. These fruits should be gathered when in their greatest perfection, and the largest and most beautiful of them chosen for the purpose.—The following is a receipt for making red ratafia, fine and soft. Take of the black heart cherries, 24 pounds; black cherries, four pounds; raspberries and strawberries, of each three pounds. Pick the fruits from their stalks, and bruise them; in which state let them continue 12 hours: press out the juice; and to every pint of it add a quarter of a pound of sugar. When the sugar is dissolved, run the whole through the filtering bag, and add to it three quarts

Distillation. of clean proof spirits. Then take of cinnamon, four ounces; of mace, one ounce; and of cloves, two drachms. Bruise these spices; put them into an alembic with a gallon of clean proof spirits and two quarts of water, and draw off a gallon with a brisk fire. Add as much of this spicy spirit to your ratafia as will render it agreeable to your palate; about one fourth is the usual proportion.

Ratafia made according to the above receipt will be of a very rich flavour and elegant colour. It may be rendered more or less of a spicy flavour, by adding or diminishing the quantity of spirit distilled from the spices. Some, in making ratafia, suffer the expressed juices of their fruits to ferment several days: by this means the vinosity of the ratafia is increased; but, at the same time, the elegant flavour of the fruits is greatly diminished. Therefore, if the ratafia is desired stronger or more vinous, it may be done by adding more spirits to the expressed juice; by which means the flavour of the fruits may be preserved, as well as the ratafia rendered stronger. It is also a method with some to tie the spices in a linen bag, and suspend them in the ratafia. But if this method is taken, it will be necessary to augment the quantity of spirit first added to the expressed juice. There is no great difference in the two methods of adding the spices, except that by suspending them in the ratafia the liquor is rendered less transparent.

Dry or sharp Ratafia. Take cherries and gooseberries, of each 30 pounds; mulberries, seven pounds; raspberries, ten pounds. Pick all these fruits clean from their stalks, &c. bruise them, and let them stand 12 hours; but do not suffer them to ferment. Press out the juice, and to every pint add three ounces of sugar. When the sugar is dissolved, run it through the filtering bag, and to every five pints of liquor add four pints of clean proof spirit; together with the same proportion of spirit drawn from the spices in the foregoing composition.

Common Ratafia. Take of nutmegs, eight ounces; bitter almonds, ten pounds; Lisbon sugar, eight pounds; ambergrise, ten grains: infuse these ingredients three days in ten gallons of clean proof spirit, and filter through a flannel bag for use. The nutmegs and bitter almonds must be bruised, and the ambergrise rubbed with the Lisbon sugar in a marble mortar, before they are infused in the spirit.

Gold Cordial. Take of the roots of angelica, four pounds; raisins stoned, two pounds; coriander seeds, half a pound; caraway seeds and cinnamon, of each half a pound; cloves, two ounces; figs and liquorice root, of each one pound; proof spirit, eleven gallons; water, two gallons. The angelica, liquorice, and figs, must be sliced before they are added. Digest two days; and draw off by a gentle heat till the fumes begin to rise; hanging in a piece of linen, fastened to the mouth of the worm, an ounce of English saffron. Then dissolve eight pounds of sugar in three quarts of rose water, and add to it the distilled liquor.—This liquor derives its name of *gold cordial* from a quantity of leaf gold being formerly added to it; but this is now generally disused, as it cannot possibly add any virtue.

Cardamum, or All-fours. Take of pimento, caraway, and coriander seeds, and lemon peel, each three

pounds; of malt spirits, eleven gallons; water, three gallons. Draw off with a gentle fire, dulcify with common sugar, and make up to the strength desired with clear water. This is a dram greatly used by the poorer sort of people in some countries.

Geneva. There was formerly sold in the apothecaries shops a distilled spirituous water of juniper; but the vulgar being fond of it as a dram, the distillers supplanted the apothecaries, and sold it under the name of *Geneva*. The common kind, however, is not made from juniper berries, but from oil of turpentine; and indeed it is surprising that people should accustom themselves to drink such liquors for pleasure.—The receipt for making this kind of spirit, sold in the gin shops at London, is as follows: Take of the ordinary malt spirits, ten gallons; oil of turpentine, two ounces; bay salt, three handfuls. Draw off by a gentle fire till the fumes begin to rise; and make up your goods to the strength required with clear water.

The best kind is made by the following recipe.—Take of juniper berries, three pounds; proof spirit, ten gallons; water, four gallons. Draw off by a gentle fire till the fumes begin to rise, and make up your goods to the strength required with clean water.

There is a sort of this liquor called *Holland's Geneva*, from its being imported from Holland, which is greatly esteemed. The ingredients used by the Dutch are the same with those given in the last recipe; only, instead of malt spirits, they use French brandy. But from what has been already observed concerning the nature of these kinds of spirits, it is easy to see, that by the help of a well rectified spirit, geneva may be made in this country at least nearly equal to the Dutch, provided it is kept to a proper age; for all spirituous liquors contract a softness and mellowness by age, impossible to be imitated any other way.

DISTILLERY, the art of distilling brandy and other spirits. This art was first brought into Europe by the Moors of Spain, about the year 1150: they learned it of the African Moors, who had it from the Egyptians; and the Egyptians are said to have practised it in the reign of the emperor Dioclesian, though it was unknown to the ancient Greeks and Romans. See **DISTILLATION** and **FERMENTATION**.

DISTINCTION, in *Logic*, is an assemblage of two or more words, whereby disparate things, or their conceptions, are denoted.

DISTORTION, in *Medicine*, is when any part of the human body remarkably deviates from its natural shape or position. Distortions of different parts may arise either from a convulsion or palsy; though sometimes a terrible distortion in the shape of the whole body hath arisen merely from carelessness and ill habits. Mr Winslow, in the *Memoirs of the Academy of Sciences at Paris*, gives a very remarkable account of a lady of quality, whom he had known to be perfectly straight for several years; but who taking afterwards to a sedentary course of life, got a custom of dressing herself very carelessly, and of leaning as she sat, either forwards or to a side. It was not many months before she found it painful and troublesome to stand or sit upright; and soon afterwards she found an inequality in the lower part of the back bone. Alarmed at this, she consulted the gentleman who gave the account. To prevent the increase of the malady, he ordered

Distress.

ordered her to wear a particular sort of jumps instead of stays, and had a pad of a proper size applied: but this was soon neglected; and the consequence was, that in a little time the back bone became more and more crooked, and at length bent itself sidewise in two contrary directions, so as to represent the figure of the Roman S; and the lady, still refusing to take the proper measures, lost a fourth part of her height; and continued for the remainder of her life, not only crooked from right to left and from left to right, but so oddly folded together, that the first of the false ribs on one side approached very near the crest of the os ilium on that side, and the viscera of the lower belly became strangely pushed out of their regular places to the opposite side; and the stomach itself was so strongly compressed, that whatever she swallowed seemed to her to fall into two separate cavities.

DISTRESS, in its ordinary acceptation, denotes calamity, misery, or painful suffering.

The Contemplation of DISTRESS, a source of pleasure. On this subject we have a very pleasing and ingenious essay by Dr Barnes, in the Memoirs of the Literary and Philosophical Society of Manchester*. It is introduced with the following motto:

* Vol. i.
p. 144. &c.

*Suave mari magno, turbantibus æquora ventis,
E terrâ alterius magnum spectare periculum.
Non quia vexari quæquam est jucunda voluptas;
Sed quibus ipse malis careas, quia cernere suave est.*

LUCRETIVS.

“The pleasure here described by the poet, and of which he has mentioned so striking and apposite an instance, may perhaps at first seem of so singular and astonishing a nature, that some may be disposed to doubt of its existence. But that it does exist, in the case here referred to, and in many others of a similar kind, is an undoubted fact; and it may not appear an useless or disagreeable entertainment, to trace its source in the human breast, together with the final cause for which it was implanted there by our benevolent Creator.

“Shall I, it may be said, feel complacency in beholding a scene in which many of my fellow-creatures are agonizing with terror, whilst I can neither diminish their danger, nor, by my sympathy, divide their anguish? At the sight of another’s woe, does not my bosom naturally feel pain? Do I not share in his sensations? And is not this strong and exquisite sensibility intended by my Maker to urge me on to active and immediate assistance? These sensations are indeed attended with a noble pleasure, when I can, by friendly attention, or by benevolent communication, soothe the sorrows of the poor mourner, snatch him from impending danger, or supply his pressing wants. But in general, where my sympathy is of no avail to the wretched sufferer, I fly from the spectacle of his misery, unable or unwilling to endure a pain which is not allayed by the sweet satisfaction of doing good.”

It will be necessary, in answer to these objections, in the first place to prove the reality of the feeling, the cause of which, in the human constitution, we here attempt to explore.

Mr Addison, in his beautiful papers on the Pleasures of the Imagination, has observed, “that objects or scenes, which, when real, give disgust or pain, in de-

scription often become beautiful and agreeable. Thus, even a dunghill may, by the charms of poetic imagery, excite pleasure and entertainment. Scenes of this nature, dignified by apt and striking description, we regard with something of the same feelings with which we look upon a dead monster.

Informe cadaver

*Protrahitur: nequeunt expleri corda tuendo
Terribiles oculos, vultum, villosaque fetis
Pectora semiferi, atque extinctos faucibus ignes.*

VIRGIL.

“This (he observes) is more particularly the case, where the description raises a ferment in the mind and works with violence upon the passions. One would wonder (adds he) how it comes to pass, that passions, which are very unpleasant at all other times, are very agreeable when excited by proper description; such as terror, dejection, grief, &c. This pleasure arises from the reflection we make upon ourselves, whilst reading it, that we are not in danger from them. When we read of wounds, death, &c. our pleasure does not rise so properly from the grief which these melancholy descriptions give us, as from the secret comparison we make of ourselves with those who suffer. We should not feel the same kind of pleasure, if we actually saw a person lying under the tortures that we meet with in a description.”

And yet, upon the principle assigned by this amiable writer, we might feel the same, or even higher pleasure, from the actual view of distress, than from any description; because the comparison of ourselves with the sufferer would be more vivid, and consequently the feeling more intense. We would only observe, that the cause which he assigns for this pleasure is the very same with that assigned by Lucretius in our motto. Mr Addison applies it to the description; the poet, to the actual contemplation of affecting scenes. In both the pleasure is supposed to originate in selfishness. But wherever the social passions are deeply interested, as they are here supposed to be, from the pathetic description, or the still more pathetic survey, of the sufferings of another, the sympathetic feelings will of themselves, at once, and previously to all reflection, become a source of agreeable and tender emotions. They will thus dignify and enhance the satisfaction, if any such be felt, arising merely from the consideration of our own personal security. And the more entirely we enter into the scene, by losing all ideas of its being either past or fabulous, the more perfectly we forget ourselves, and are absorbed in the feeling,—the more exquisite is the sensation.

But as our subsequent speculations will chiefly turn upon the pleasure derived from real scenes of calamity, and not from those which are imaginary, it may be expected that we produce instances in proof that such pleasure is felt by persons very different in their taste and mental cultivation.

We shall not mention the horrid joy with which the savage feasts his eye upon the agonies and contortions of his expiring prisoner—expiring in all the pains which artificial cruelty can inflict! Nor will we recur to the almost equally savage sons of ancient Rome, when the majesty of the Roman people could rush, with eagerness and transport, to behold hundreds of gladiators contending

Distress. contending in fatal conflict, and probably more than half the number extended, weltering in blood and writhing in agony, upon the plain. Nor will we mention the Spanish bull feasts; nor the fervent acclamations of an English mob around their fellow creatures, when engaged in furious battle, in which it is possible that some of the combatants may receive a mortal blow, and be hurried in this awful state to the bar of his Judge. Let us survey the multitudes which, in every part of the kingdom, always attend an execution. It may perhaps be said, that in all places the vulgar have little of the sensibility and tenderness of more polished bosoms. But, in the last mentioned instance, an execution, there is no exultation in the sufferings of the poor criminal. He is regarded by every eye with the most melting compassion. The whole assembly sympathizes with him in his unhappy situation. An awful stillness prevails at the dreadful moment. Many are wrung with unutterable sensations; and prayer and silence declare, more loudly than any language could, the interest they feel in his distress. Should a reprieve come to rescue him from death, how great is the general triumph and congratulation! And probably in this multitude you will find not the mere vulgar herd alone, but the man of superior knowledge and of more refined sensibility; who, led by some strong principle, which we wish to explain, feels a pleasure greater than all the pain, great and exquisite as one should imagine it to be, from such a spectacle.

The man who condemns many of the scenes we have already mentioned as barbarous and shocking, would probably run with the greatest eagerness to some high cliff, overhanging the ocean, to see it swelled into a tempest, though a poor vessel, or even a fleet of vessels, were to appear as one part of the dreadful scenery, now lifted to the heavens on the foaming surge, now plunged deep into the fathomless abyss, and now dashed upon the rocks, where they are in a moment shivered into fragments, and, with all their mariners, entombed in the wave. Or, to vary the question a little; Who would not be forward to stand safe, on the top of some mountain, or tower, adjoining to a field of battle, in which two armies meet in desperate conflict, though probably thousands may soon lie before him prostrate on the ground, and the whole field present the most horrid scenes of carnage and desolation?

That in all these cases pleasure predominates in the compounded feeling, is plain from hence, because you continue to survey the scene; whereas when pain became the stronger sensation, you would certainly retire.

Cultivation may indeed have produced some minuter differences in the taste and feelings of different minds. Those whose sensibilities have not been refined by education or science, may feel the pleasure in a more gross and brutal form. But do not the most polished natures feel a similar, a kindred pleasure, in the deep wrought distresses of the well imagined scene? Here the endeavour is, to introduce whatever is dreadful or pathetic, whatever can harrow up the feelings or extort the tear. And the deeper and more tragical the scene becomes, the more it agitates the several passions of terror, grief, or pity—the more intensely it delights, even the most polished minds. They seem to enjoy the various and vivid emotions of contending passions. They love to

have the tear trembling in the eye, and to feel the whole soul wrapt in thrilling sensations. For that moment they seem to forget the fiction; and afterwards commend that exhibition most, in which they most entirely lost sight of the author, and of their own situation, and were alive to all the unutterable vibrations of strong or melting sensibility.

Taking it then for granted, that in the contemplation of many scenes of distress, both imaginary and real, a gratification is felt, let us endeavour to account for it, by mentioning some of those principles, woven into the web of human nature, by its benevolent Creator, on which that gratification depends.

Dr Akenfide, with his accustomed strength and brilliancy of colouring, describes and accounts for it in the following manner:

—————“ Behold the ways
Of heaven’s eternal destiny to man!
For ever just, benevolent, and wise!
That Virtue’s awful steps, howe’er pursued
By vexing fortune, and intrusive pain,
Should never be divided from her chaste,
Her fair attendant, Pleasure. Need I urge
Thy tardy thought through all the various round
Of this existence, that thy softening soul
At length may learn, what energy the hand
Of Virtue mingles in the bitter tide
Of Passion, swelling with distress and pain.
To mitigate the sharp, with gracious drops
Of cordial Pleasure. Ask the faithful youth
Why the cold urn of her, whom long he lov’d,
So often fills his arm? So often draws
His lonely footsteps, at the silent hour,
To pay the mournful tribute of his tears?
O! he will tell thee, that the wealth of worlds
Should ne’er seduce his bosom to forego
That sacred hour, when stealing from the noise
Of care and envy, sweet remembrance sooths,
With Virtue’s kindest looks, his aching breast,
And turns his tears to rapture. Ask the crowd,
Which flies impatient from the village-walk
To climb the neighb’ring cliffs, when far below
The cruel winds have hurl’d upon the coast
Some helpless bark: whilst sacred Pity melts
The general eye, or Terror’s icy hand
Smites their distorted limbs, or horrent hair.
While every mother closer to her breast
Catches her child; and, pointing where the waves
Foam through the shattered vessel, shrieks aloud,
As one poor wretch, that spreads his piteous arms
For succour, swallowed by the roaring surge,
As now another, dash’d against the rock,
Drops lifeless down. O dearest thou indeed
No kind endearment here, by nature given,
To mutual terror, and compassion’s tears?
No sweetly melting softness, which attracts
O’er all that edge of pain, the social powers,
To this their proper action and their end?”

The poet pursues the sentiment in the same animated imagery, describing the strong, but pleasurable, sensations which the soul feels, in reading the sufferings of heroes who nobly died in the cause of liberty and their country:

—————“ When

Distress.

“ When the pious band
Of youths, who fought for freedom, and their fires,
Lie side by side in gore.”

Or, in the strong movements of indignation and revenge against the tyrant, who invades that liberty, and enslaves their country.

“ When the patriot’s tear
Starts from thine eye, and thy extended arm
In fancy hurls the thunderbolt of Jove,
To fire the impious wreath on Philip’s brow,
Or dash Octavius from his trophied car;
Say—Does the sacred soul repine to taste
Thy big distress? Or, would’st thou then exchange
Those heart-ennobling sorrows for the lot
Of him, who sits amid the gaudy herd
Of mute barbarians, bending to his nod,
And bears aloft his gold-invested front,
And says within himself, “ I am a king,
And wherefore should the clamorous voice of woe
Intrude upon mine ear ?”

The sentiment of this charming and moral poet is, that sympathetic feelings are virtuous, and therefore pleasant. And from the whole, he deduces this important conclusion; that every virtuous emotion must be agreeable, and that this is the sanction and the reward of virtue. The thought is amiable; the conclusion noble: but still the solution appears to us to be imperfect.

We have already said, that the pleasure arising from the contemplation of distressful scenes is a compounded feeling, arising from several distinct sources in the human breast. The kind and degree of the sensation must depend upon the various blendings of the several ingredients which enter into the composition. The cause assigned by Mr Addison, the sense of our own security, may be supposed to have some share in the mass of feelings. That of Dr Akenfide may be allowed to have a still larger proportion. Let us attempt to trace some of the rest.

There are few principles in human nature of more general and important influence than that of sympathy. A late ingenious writer, led by the fashionable idea of simplifying all the springs of human nature into one source, has in his beautiful Theory of Moral Sentiments, endeavoured to analyze a very large number of the feelings of the heart into sympathetic vibration. Though it appears to us most probable, that the human mind, like the human body, possesses various and distinct springs of action and of happiness, yet he has shown, in an amazing diversity of instances, the operation and importance of this principle of human nature. Let us apply it to our present subject.

We naturally sympathize with the passions of others. But if the passions they appear to feel be not those of mere distress alone; if, amidst the scenes of calamity, they display fortitude, generosity, and forgiveness; if, “ rising superior to the cloud of ills which covers them,” they nobly stand firm, collected, and patient; here a still higher source of pleasure opens upon us, from complacency, admiration, and that unutterable sympathy which the heart feels with virtuous and heroic minds. By the operation of this principle, we place ourselves in their situation; we feel, as it were, some share of

that conscious integrity and peace which they must enjoy. Hence, as before observed, the pleasure will vary, both as to its nature and degree, according to the scene and characters before us. The shock of contending armies in the field,—the ocean wrought to tempest, and covered with the wreck of shattered vessels,—and a worthy family silently, yet nobly, bearing up against a multitude of surrounding sorrows, will excite very different emotions, because the component parts of the pleasurable sensation consist of very different materials. They all excite admiration; but admiration, how diversified, both as to its degree and its cause! These several ingredients may doubtless be so blended together, that the pleasure shall make but a very small part of the mixed sensation. The more agreeable tints may bear little proportion to the terrifying red or the gloomy black.

In many of the instances which have been mentioned, the pleasure must arise chiefly, if not solely, from the circumstances or accompaniments of the scene. The sublime feelings excited by the view of an agitated ocean, relieve and soften those occasioned by the shipwreck. And the awe excited by the presence of thousands of men, acting as if with one soul, and displaying magnanimity and firmness in the most solemn trial, tempers those sensations of horror and of pain which would arise from the field of battle.

The gratification we are attempting to account for depends also, in a very considerable degree, upon a principle of human nature, implanted in it for the wisest ends; the exercise which it gives to the mind, by rousing it to energy and feeling. Nothing is so insupportable, as that languor and ennui, for the full expression of which our language does not afford a term. How agreeable it is, to have the soul called forth to exertion and sensibility, let the gamester witness, who, unable to endure the lassitude and sameness of unanimated luxury, runs with eagerness to the place where probably await him all the irritation and agony of tumultuous passions.

Again; it is a law of our nature, that opposite passions, when felt in succession, and, above all, when felt at the same moment, heighten and increase each other. Ease succeeding pain, certainty after suspense, friendship after aversion, are unspeakably stronger than if they had not been thus contrasted. In this conflict of feelings, the mind rises from passive to active energy. It is roused to intense sensation; and it enjoys that peculiar, exquisite, and complex feeling, in which, as in many articles of our table, the acid and the sweet, the pleasurable and painful, pungencies are so happily mixed together, as to render the united sensation amazingly more strong and delightful.

We have not yet mentioned the principle of curiosity, that busy and active power, which appears so early, continues almost unimpaired so long, and to which, for the wisest ends, is annexed so great a sense of enjoyment. To this principle, rather than to a love of cruelty, would we ascribe that pleasure which children sometimes seem to feel from torturing flies and lesser animals. They have not yet formed an idea of the pain they inflict. It is, indeed, of unspeakable consequence, that this practice be checked as soon and as effectually as possible, because it is so important, that they learn to connect the ideas of pleasure and

pain

Distress,
Distribu-
tion.

pain with the motions and actions of the animal creation. And to this principle may we also refer no small share of that pleasure in the contemplation of distressful scenes, the springs of which, in the human heart, we are now endeavouring to open.

To curiosity, then—to sympathy—to mental exertion—to the idea of our own security—and to the strong feelings occasioned by viewing the actions and passions of mankind in interesting situations, do we ascribe that gratification which the mind feels from the survey of many scenes of sorrow. We have called it a *pleasure*; but it will approach towards, or recede from, pleasure, according to the nature and proportion of the ingredients of which the sensation is composed. In some cases, pain will predominate. In others, there will be exquisite enjoyment.

The final cause of this constitution of the human mind is probably, that by means of this strong sensation, the soul may be preserved in continual and vigorous motion—that its feelings may be kept lively and tender—that it may learn to practise the virtues it admires—and to assist those to whom its sympathy can reach—and that it may thus be led, by these social exercises of the heart, to soften with compassion—to expand with benevolence—and generously to assist in every case in which assistance can be given. An end this sufficient,

—————“ To assert eternal Providence,
And justify the ways of God to man.”

DISTRESS, in *Law*, the seizing or distraining any thing for rent in arrear, or other duty unperformed.

The effect of this distress is to compel the party either to replevy the things distrained, and contest the taking, in an action of trespass against the distrainer; or rather to oblige him to compound and pay the debt or duty for which he was so distrained.

There are likewise compulsory distresses in actions, to cause a person appear in court; of which kind there is a distress personal of one's moveable goods, and the profits of his lands, for contempt in not appearing after summons: there is likewise distress real, of a person's immoveable goods. In these cases none shall be distrained to answer for any thing touching their freeholds, but by the king's writ.

Distress may be either finite or infinite. Finite distress is that which is limited by law, in regard to the number of times it shall be made, in order to bring the party to a trial of the action. Infinite distress is that which is without any limitation, being made till the person appears: it is farther applied to jurors that do not appear; as, upon a certificate of assize, the process is *venire facias*, *habeas corpora*, and distress infinite.

It is also divided into grand distress and ordinary distress; of these the former extends to all the goods and chattels that the party has within the county. A person, of common right, may distrain for rents and all manner of services; and where a rent is reserved on a gift in tail, lease for life, or years, &c. though there be no clause of distress in the grant or lease, so as that he has the reversion; but on a feoffment made in fee, a distress may not be taken, unless it be expressly reserved in the deed.

DISTRIBUTION, in a general sense, the act of

dividing a thing into several parts, in order to the disposing each in its proper place.

DISTRIBUTION, in *Architecture*, the dividing and disposing the several parts and pieces which compose a building, as the plan directs. See **ARCHITECTURE**.

DISTRIBUTION, in *Rhetoric*, a kind of description, whereby an orderly division and enumeration is made of the principal qualities of the subject. David supplies us with an example of this kind, when in the heat of his indignation against sinners, he gives a description of their iniquity: “ Their throat is an open sepulchre; they flatter with their tongues; the poison of asps is under their lips; their mouth is full of cursing and lies; and their feet are swift to shed blood.”

DISTRIBUTION, in *Printing*, the taking a form asunder, separating the letters, and disposing them in the cases again, each in its proper cell. See **PRINTING**.

DISTRICT, in *Geography*, a part of a province, distinguished by peculiar magistrates, or certain privileges; in which sense it is synonymous with hundred. See **HUNDRED**.

DISTRINGAS, in *Law*, a writ commanding the sheriff, or other officer, that he distrain a person for debt to the king, &c. or for his appearance at a certain day.

Distringas Juratores, a writ directed to the sheriff, whereby he is commanded to distrain upon a jury to appear, and to return issues on their lands, &c. for non-appearance. This writ of *distringas juratores* issues for the sheriff to have their bodies in court, &c. at the return of the writ.

DITCH, a common fence or enclosure in marshes, or other wet land where there are no hedges. They allow these ditches six feet wide against highways that are broad; and against commons, five feet. But the common ditches about enclosures, dug at the bottom of the bank on which the quick is raised, are three feet wide at the top, one at the bottom, and two feet deep. By this means each side has a slope, which is of great advantage; for where this is neglected, and the ditches dug perpendicular, the sides are always washing down: besides, in a narrow-bottomed ditch, if cattle get down into it, they cannot stand to turn themselves to crop the quick: but where the ditch is four feet wide, it should be two and a half deep: and where it is five wide, it should be three deep; and so in proportion.

Ditch-Water is often used as an object for the microscope, and seldom fails to afford a great variety of animalcules. This water very often appears of a yellowish, greenish, or reddish colour; and this is wholly owing to the multitudes of animals of those colours which inhabit it. These animals are usually of the shrimp kind: and Swammerdam, who very accurately examined them, has called them, from the figure of their horns, *pulex aquaticus arborefcens*. They copulate in May or June; and are often so numerous at that season, that the whole body of the water they are found in, is seen to be of a red, green, or yellowish colour, according to the colours of their bodies. The green thin scum also, so frequently seen on the surface of standing waters in summer, is no other than a multitude of small animalcules of this or some of the other kinds. Dunghill water is not less full of animals than

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that of ditches; and is often found so thronged with animalcules, that it seems altogether alive: it is then so very much crowded with these creatures, that it must be diluted with clear water before they can be distinctly viewed. There are usually in this fluid a sort of eels which are extremely active; and besides these and many other of the common inhabitants of fluids, there is one species found in this which seems peculiar to it: the middle part of them is dark and beset with hairs, but the ends are transparent; their tails are tapering, with a long sprig at the extremity, and their motion is slow and waddling. See ANIMALCULE.

DITCH, in *Fortification*, called also *foss* and *moat*, a trench dug round the rampart or wall of a fortified place, between the scarp and counterscarp. See FORTIFICATION.

DITHYRAMBUS, in ancient poetry, a hymn in honour of Bacchus, full of transport and poetical rage.

This poetry owes its birth to Greece, and to the transports of wine; and yet art is not quite exploded, but delicately applied to guide and restrain the dithyrambic impetuosity, which is indulged only in pleasing flights. Horace and Aristotle tell us, that the ancients gave the name of dithyrambus to those verses wherein none of the common rules or measures were observed. As we have now no remains of the dithyrambus of the ancients, we cannot say exactly what their measure was.

DITONE, in *Music*, an interval comprehending two tones. The proportion of the sounds that form the ditone is 4 : 5, and that of the semitone is 5 : 6.

DITRIHEDRIA, in *Mineralogy*, spars with twice three sides, or six planes; being formed of two trigonal pyramids joined base to base, without any intermediate column.

The species of ditrihedria are distinguished by the different figures of these pyramids.

DITTANDER. See LEPIDIUM, BOTANY *Index*.

DITTANY. See DICTAMNUS, BOTANY *Index*.

DITTO, in books of accounts, usually written D^o, signifies the afore-mentioned. The word is corrupted from the Italian *detto*, "the said:" as in our law-phrase, "the said premises," meaning the same as were afore-mentioned.

DITTON, HUMPHRY, an eminent mathematician, was born at Salisbury, May 29. 1675. Being an only son, and his father observing in him an extraordinary good capacity, determined to cultivate it with a good education. For this purpose he placed him in a reputable private academy; upon quitting of which he, at the desire of his father, though against his own inclination, engaged in the profession of divinity, and began to exercise his function at Tunbridge in the county of Kent, where he continued to preach some years; during which time he married a lady of that place.

But a weak constitution, and the death of his father, induced Mr Ditton to quit that profession. And at the persuasion of Dr Harris and Mr Whiston, both eminent mathematicians, he engaged in the study of mathematics; a science to which he had always a strong inclination. In the prosecution of this science, he was much encouraged by the success and applause he received: being greatly esteemed by the chief professors of it, and particularly by Sir Isaac Newton, by whose interest and recommendation he was elected master of

the new mathematical school in Christ's Hospital; where he continued till his death, which happened in 1715, in the 40th year of his age, much regretted by the philosophical world, who expected many useful and ingenious discoveries from his assiduity, learning, and penetrating genius.

Mr Ditton published several mathematical and other tracts, as below.—1. Of the Tangents of Curves, &c. *Phil. Transf.* vol. xxiii.

2. A Treatise on Spherical Catoptrics, published in the *Philos. Transf.* for 1705; from whence it was copied and reprinted in the *Acta Eruditorum* 1707, and also in the Memoirs of the Academy of Sciences at Paris.

3. General Laws of Nature and Motion; 8vo, 1705. Wolfius mentions this work, and says that it illustrates and renders easy the writings of Galileo, Huygens, and the Principia of Newton. It is also noticed by La Roche, in the *Memoires de Literature*, vol. viii. page 46.

4. An Institution of Fluxions, containing the first Principles, Operations, and Applications, of that admirable Method, as invented by Sir Isaac Newton, 8vo, 1706. This work, with additions and alterations, was again published by Mr John Clarke, in the year 1726.

5. In 1709 he published the *Synopsis Algebraica* of John Alexander, with many additions and corrections.

6. His Treatise on Perspective was published in 1712. In this work he explained the principles of that art mathematically; and besides teaching the methods then generally practised, gave the first hints of the new method afterwards enlarged upon and improved by Dr Brook Taylor; and which was published in the year 1715.

7. In 1714, Mr Ditton published several pieces both theological and mathematical; particularly his Discourse on the Resurrection of Jesus Christ; and The New Law of Fluids, or a Discourse concerning the Ascend of Liquids, in exact Geometrical Figures, between two nearly contiguous Surfaces. To this was annexed a tract, to demonstrate the impossibility of thinking or perception being the result of any combination of the parts of matter and motion: a subject much agitated about that time. To this work also was added an advertisement from him and Mr Whiston, concerning a method for discovering the longitude, which it seems they had published about half a year before. This attempt probably cost our author his life; for although it was approved and countenanced by Sir Isaac Newton, before it was presented to the Board of Longitude, and the method has been successfully put in practice, in finding the longitude between Paris and Vienna; yet that board then determined against it: so that the disappointment, together with some public ridicule (particularly in a poem written by Dean Swift), affected his health so that he died the ensuing year, 1715.

In an account of Mr Ditton, prefixed to the German translation of his Discourse on the Resurrection, it is said that he had published, in his own name only, another method for finding the longitude; but which Mr Whiston denied. However, Raphael Levi, a learned Jew, who had studied under Leibnitz, informed the German editor, that he well knew that Ditton and Leibnitz had corresponded upon the subject; and that

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Ditton had sent to Leibnitz a delineation of a machine he had invented for that purpose; which was a piece of mechanism constructed with many wheels like a clock, and which Leibnitz highly approved of for land use; but doubted whether it would answer on ship-board, on account of the motion of the ship.

DIVAL, in *Heraldry*, the herb nightshade, used by such as blazon by flowers and herbs, instead of colours and metals, for sable or black.

DIVALIA, in antiquity, a feast held among the ancient Romans, on the 21st day of December, in honour of the goddess Angerona; whence it is also called *Angeronalia*.—On the day of this feast, the pontifices performed sacrifice in the temple of Voluptia, or the goddess of joy and pleasure; who, some say, was the same with Angerona, and supposed to drive away all the sorrows and chagrins of life.

DIVAN, a council chamber or court of justice among the eastern nations, particularly the Turks.—The word is Arabic, and signifies the same with sofa in the Turkish dialect.

There are two sorts of divans; that of the grand signior, called *the council of state*, which consists of seven of the principal officers of the empire; and that of the grand vizir, composed of six other vizirs or counsellors of state, the chancellor, and secretaries of state, for the distribution of justice.

The word is also used for a hall in the private houses of the orientals. The custom of China does not allow the receiving of visits in the inner parts of the house, but only at the entry, in a divan contrived on purpose for ceremonies.

Travellers relate wonders of the silence and expedition of the divans of the east.

DIVAN-Beghi, the superintendant of justice in Persia, whose place is the last of the six ministers of the second rank, who are all under the athemadauler or first minister. To this tribunal of the divan-beghi he appeals from sentences passed by the governors. He has a fixed stipend of 50,000 crowns for administering justice. All the serjeants, ushers, &c. of the court are in his service. He takes cognizance of the criminal causes of the chams, governors, and other great lords of Persia, when accused of any fault. There are divan-beghis not only at court and in the capital, but also in the provinces and other cities of the empire. The Alcoran is the sole rule of his administration of justice, which also he interprets at pleasure. He takes no cognizance of civil causes; but all differences arising between the officers of the king's household and between foreign ministers are determined by him.

DIVANDUROW, the name of seven islands which lie a league north of the Maldives, and 24 from the coast of Malabar, almost opposite to Cananor.

DIVER. See COLYMBUS, ORNITHOLOGY *Index*.

DIVERGENT, or DIVERGING LINES, in *Geometry*, are those which constantly recede from each other.

DIVERGENT Rays, in *Optics*, are those which, going from a point of the visible object, are dispersed, and continually depart one from another, in proportion as they are removed from the object: in which sense it is opposed to convergent. See OPTICS.

DIVERSIFYING, in *Rhetoric*, is of infinite service to the orator; it is an accomplishment essential to his character, and may fitly be called the subject of all

his tropes and figures. Vossius lays down six ways of diversifying a subject. 1. By enlarging on what was briefly mentioned before. 2. By a concise enumeration of what had been insisted on at length. 3. By adding something new to what is repeated. 4. By repeating only the principal heads of what had been said. 5. By transposing the words and periods. 6. By imitating them.

DIVERSION, in military affairs, is when an enemy is attacked in one place where they are weak and unprovided, in order to draw off their forces from another place where they have made or intend to make an irruption. Thus the Romans had no other way in their power of driving Hannibal out of Italy, but by making a diversion in attacking Carthage.

DIVESTING, properly signifies undressing, or stripping off one's garment; in contradistinction from investing.

In law, it is used for the act of surrendering or relinquishing one's effects. By a contract of donation or sale, the donor or seller is said to be disseised and divested of his property in such a commodity, and the donee or purchaser becomes invested therewith. See INVESTITURE.

A demise is a general divestiture which the fathers and mothers make of all their effects in favour of their children.

DIVIDEND, in *Arithmetic*, the number proposed to be divided into equal parts. See ARITHMETIC, N^o 14.

DIVIDEND of Stocks, is a share or proportion of the interest of stocks erected on the public funds, as the South sea, &c. divided among and paid to the adventurers half yearly.

DIVINATION, the knowledge of things obscure or future, which cannot be attained by any natural means.

It was a received opinion among the heathens, that the gods were wont to converse familiarly with some men, whom they endowed with extraordinary powers, and admitted to the knowledge of their councils and designs. Plato, Aristotle, Plutarch, Cicero, and others, divide divination into two sorts or species, viz. natural and artificial.

The former was so called, because not attained by any rules or precepts of art, but infused or inspired into the diviner, without his taking any further care about it than to purify and prepare himself for the reception of the divine afflatus. Of this kind were all those who delivered oracles, and foretold future events by inspiration, without observing external signs or accidents.

The second species of divination was called *artificial*, because it was not obtained by immediate inspiration, but proceeded upon certain experiments and observations arbitrarily instituted, and mostly superstitious. Of this sort there were various kinds, as by sacrifices, entrails, flame, cakes, flour, wine, water, birds, lots, verses, omens, &c.

In holy Scripture we find mention made of nine different kinds of divination. The first performed by the inspection of planets, stars, and clouds: it is supposed to be the practises of this whom Moses calls מעורני *meonen*, of אֲנָן *anan*, "cloud," Deuter. chap. xviii. ver. 10. 2. Those whom the prophet calls in the same place

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Divination.

Divination. מְנַחֵשֶׁה *menacheseh*, which the Vulgate and generality of interpreters render *augur*. 3. Those who in the same place are called מְנַחֵשֶׁה *mecafeseh*, which the Septuagint and Vulgate translate "a man given to ill practices." 4. Such authors whom Moses in the same chapter, ver. 11. calls דְּבַר *hhober*. 5. Those who consult the spirits called *Python*; or, as Moses, expresses it in the same book, אֲנֹכִי אֲשַׁל "those who ask questions of Python." 6. Witches or magicians, whom Moses calls יְעִיעִי *judeoni*. 7. Those who consult the dead, *necromancers*. 8. The prophet Hosea, chap. iv. ver. 12. mentions such as consult staves, שְׂאֵל מַקְלֵי; which kind of divination may be called *rhodomancy*. 9. The last kind of divination mentioned in Scripture is *hepatascopy*, or the consideration of the liver.

Divination of all kinds was necessarily made an occult science, which naturally remained in the hands of the priests and priestesses, the magi, the soothsayers, the augurs, the visionaries, the priests of the oracles, the false prophets, and other like professors, till the time of the coming of Jesus Christ. The light of the gospel, it is true, has dissipated much of this darkness; but it is more difficult, than is commonly conceived, to eradicate from the human mind a deep-rooted superstition, even though the truth be set in the strongest light, especially when the error has been believed almost from the origin of the world: so we still find existing among us the remains of this Pagan superstition, in the following chimeras, which enthusiastic and designing men have formed into arts and sciences; though it must be owned, to the honour of the 18th century, that the pure doctrines of Christianity, and the spirit of philosophy, which become every day more diffused, equally concur in banishing these visionary opinions. The vogue for these pretended sciences and arts, moreover, is past, and they can no longer be named without exciting ridicule in all sensible people. By relating them here, therefore, and drawing them from their obscurity, we only mean to show their futility, and to mark those rocks against which the human mind, without the assistance of a pilot, might easily run.

For the attaining of these supernatural qualifications, there are still existing in the world the remains of,

1. *Astrology*: a conjectural science which teaches to judge of the effects and influences of the stars; and to predict future events by the situation of the planets and their different aspects. It is divided into *natural astrology*, or *meteorology*; which is confined to the foretelling of natural effects, as the winds, rain, hail, and snow, frosts and tempests. In this consists one branch of the art of almanack-makers; and by merely confronting these predictions in the kalendar, with the weather each day produces, every man of sense will see what regard is to be paid to this part of astrology. The other part, which is called *judicial astrology*, is still far more illusive and rash than the former: and having been at first the wonderful art of visionaries, it afterwards became that of impostors; a very common fate with all those chimerical sciences, of which we shall here speak. This art pretends to teach the method of predicting all sorts of events that shall happen upon the earth, as well such as relate to the public as to private persons; and that by the same inspection of the stars and planets and their different constellations.

The *cabala* signifies, in like manner, the knowledge of things that are above the moon, as the celestial bodies and their influences; and in this sense it is the same with judicial astrology, or makes a part of it.

2. *Horoscopy*, which may also be considered as a part of astrology, is the art by which they draw a figure, or celestial scheme, containing the 12 houses, wherein they mark the disposition of the heavens at a certain moment; for example, that at which a man is born, in order to foretel his fortune, or the incidents of his life. In a word, it is the disposition of the stars and planets at the moment of any person's birth. But as there cannot be any probable or possible relation between the constellations and the human race, all the principles they lay down, and the prophecies they draw from them, are chimerical, false, absurd, and a criminal imposition on mankind.

3. The art of *augury* consisted, among the ancient Romans, in observing the flight, the singing and eating of birds, especially such as were held sacred. See *AUGURY*.

4. The equally deceitful art of *haruspicy* consisted, on the contrary, in the inspection of the bowels of animals, but principally of victims; and from thence predicting grand incidents relative to the republic, and the good or bad events of its enterprises.

5. *Aeromancy* was the art of divining by the air. This vain science has also come to us from the Pagans; but is rejected by reason as well as Christianity, as false and absurd.

6. *Pyromancy* is a divination made by the inspection of a flame, either by observing to which side it turns, or by throwing into it some combustible matter, or a bladder filled with wine, or any thing else from which they imagined they were able to predict.

7. *Hydromancy* is the supposed art of divining by water. The Persians, according to Varro, invented it; Pythagoras and Numa Pompilius made use of it; and we still admire the like wonderful prognosticators.

8. *Geomancy* was a divination made by observing of cracks or clefts in the earth. It was also performed by points made on paper, or any other substance, at a venture; and they judged of future events from the figures that resulted from thence. This was certainly very ridiculous; but it is nothing less so to pretend to predict future events by the inspection of the grounds of a dish of tea or coffee, or by cards, and many other like matters.—Thus have designing men made use of the four elements to deceive their credulous brethren.

9. *Chiromancy* is the art which teaches to know, by inspecting the hand, not only the inclinations of a man, but his future destiny also. The fools or impostors who practise this art pretend that the different parts or the lines of the hand have a relation to the internal parts of the body, as some to the heart, others to the liver, spleen, &c. On this false supposition, and on many others equally extravagant, the principles of chiromancy are founded: and on which, however, several authors, as Robert Flud an Englishman, Artemidorus, M. de la Chambre, John of Indagina, and many others, have written large treatises.

10. *Physiognomy*, or *physiognomancy*, is a science that pretends to teach the nature, the temperament, the understanding,

Divine,
Diving.

understanding, and the inclinations of men, by the inspection of their countenances, and is therefore very little less frivolous than chiro-mancy; though Aristotle, and a number of learned men after him, have written express treatises concerning it.

DIVINE, something relating to God. The word is also used, figuratively, for any thing that is excellent, extraordinary, and that seems to go beyond the power of nature and the capacity of mankind. In which sense, the compass, telescope, clocks, &c. are said to be *divine inventions*: Plato is called the *divine author*, the *divine Plato*; and the same appellation is given to Seneca: Hippocrates is called, "the divine old man," *divinus senex*, &c.

DIVING, the art or act of descending under water to considerable depths, and abiding there a competent time.

The uses of diving are very considerable, particularly in the fishing for pearls, corals, sponges, &c. See *PEARL-Fishing*, &c.

There have been various methods proposed, and machines contrived, to render the business of diving more safe and easy. The great point is to furnish the diver with fresh air; without which, he must either make a short stay or perish.

Those who dive for sponges in the Mediterranean, help themselves by carrying down sponges dipt in oil in their mouths. But considering the small quantity of air that can be contained in the pores of a sponge, and how much that little will be contracted by the pressure of the incumbent water, such a supply cannot long subsist the diver. For it is found by experiment, that a gallon of air included in a bladder, and by a pipe reciprocally inspired and expired by the lungs, becomes unfit for respiration in little more than one minute of time. For though its elasticity be but little altered in passing the lungs, yet it loses its vivifying spirit, and is rendered effete.

In effect, a naked diver, Dr Halley assures us, without a sponge, cannot remain above a couple of minutes enclosed in water, nor much longer with one, without suffocating; nor, without long practice, near so long; ordinary persons beginning to stifle in about half a minute. Besides, if the depth be considerable, the pressure of the water on the vessels makes the eyes blood-shot, and frequently occasions a spitting of blood.

Hence, where there has been occasion to continue long at the bottom, some have contrived double flexible pipes, to circulate air down into a cavity, enclosing the diver as with armour, both to furnish air and to bear off the pressure of the water, and give leave to his breast to dilate upon inspiration; the fresh air being forced down one of the pipes with bellows, and returning by the other of them, not unlike to an artery and vein.

But this method is impracticable when the depth surpasses three fathoms; the water embracing the bare limbs so closely as to obstruct the circulation of the blood in them; and withal pressing so strongly on all the junctures where the armour is made tight with leather, that, if there be the least defect in any of them, the water rushes in, and instantly fills the whole engine, to the great danger of the diver's life.

It is certain, however, that people, by being accu-

Diving.

stomed to the water from their infancy, will at length be enabled, not only to stay much longer under water than the time above mentioned, but put on a kind of amphibious nature, so that they seem to have the use of all their faculties as well when their bodies are immersed in water as when they are on dry land. Most savage nations are remarkable for this. According to the accounts of our late voyagers, the inhabitants of the South sea islands are such expert divers, that when a nail or any piece of iron was thrown overboard, they would instantly jump into the sea after it, and never failed to recover it, notwithstanding the quick descent of the metal. Even among civilized nations, many persons have been found capable of continuing an incredible length of time below water. The most remarkable instance of this kind is the famous Sicilian diver Nicolo Pesce. The authenticity of the account, indeed, depends entirely on the authority of F. Kircher. He assures us, that he had it from the archives of the kings of Sicily: but, notwithstanding this assertion, the whole hath so much of the marvellous in it, that we believe there are few who will not look upon it to have been exaggerated. "In the times of Frederic king of Sicily (says Kircher), there lived a celebrated diver, whose name was *Nicholas*, and who, from his amazing skill in swimming, and his perseverance under water, was surnamed the *fish*. This man had from his infancy been used to the sea; and earned his scanty subsistence by diving for corals and oysters, which he sold to the villagers on shore. His long acquaintance with the sea, at last, brought it to be almost his natural element. He was frequently known to spend five days in the midst of the waves, without any other provisions than the fish which he caught there and ate raw. He often swam over from Sicily into Calabria, a tempestuous and dangerous passage, carrying letters from the king. He was frequently known to swim among the gulfs of the Lipari islands, noway apprehensive of danger.

"Some mariners out at sea, one day observed something at some distance from them, which they regarded as a sea monster; but upon its approach it was known to be Nicholas, whom they took into their ship. When they asked him whither he was going in so stormy and rough a sea, and at such a distance from land, he showed them a packet of letters, which he was carrying to one of the towns of Italy, exactly done up in a leather bag, in such a manner as that they could not be wetted by the sea. He kept them thus company for some time in their voyage, conversing, and asking questions; and after eating a hearty meal with them, he took his leave, and, jumping into the sea, pursued his voyage alone.

"In order to aid these powers of enduring in the deep, nature seemed to have assisted him in a very extraordinary manner: for the spaces between his fingers and toes were webbed, as in a goose; and his chest became so very capacious, that he could take in, at one inspiration, as much breath as would serve him for a whole day.

"The account of so extraordinary a person did not fail to reach the king himself; who commanded Nicholas to be brought before him. It was no easy matter to find Nicholas, who generally spent his time in the solitudes of the deep; but, at last, after much searching,

Diving. searching, he was found, and brought before his majesty. The curiosity of this monarch had been long excited by the accounts he had heard of the bottom of the gulf of Charybdis; he now therefore conceived, that it would be a proper opportunity to have more certain information. He therefore commanded our poor diver to examine the bottom of this dreadful whirlpool; and as an incitement to his obedience, he ordered a golden cup to be flung into it. Nicholas was not insensible of the danger to which he was exposed; dangers best known only to himself; and therefore he presumed to remonstrate: but the hopes of the reward, the desire of pleasing the king, and the pleasure of showing his skill, at last prevailed. He instantly jumped into the gulf, and was as instantly swallowed up in its bosom. He continued for three quarters of an hour below; during which time the king and his attendants remained on shore, anxious for his fate; but he at last appeared, holding the cup in triumph in one hand, and making his way good among the waves with the other. It may be supposed he was received with applause when he came on shore: the cup was made the reward of his adventure; the king ordered him to be taken proper care of; and, as he was somewhat fatigued and debilitated by his labour, after a hearty meal he was put to bed, and permitted to refresh himself by sleeping.

“When his spirits were thus restored, he was again brought to satisfy the king’s curiosity with a narrative of the wonders he had seen; and his account was to the following effect. He would never, he said, have obeyed the king’s commands, had he been apprised of half the dangers that were before him. There were four things, he said, which rendered the gulf dreadful, not only to men, but to fishes themselves. 1. The force of the water bursting up from the bottom, which required great strength to resist. 2. The abruptness of the rocks that on every side threatened destruction. 3. The force of the whirlpool dashing against those rocks. And, 4. The number and magnitude of the polypous fish, some of which appeared as large as a man; and which everywhere sticking against the rocks, projected their fibrous arms to entangle him. Being asked how he was able so readily to find the cup that had been thrown in, he replied, that it happened to be flung by the waves into the cavity of a rock against which he himself was urged in his descent. This account, however, did not satisfy the king’s curiosity. Being requested to venture once more into the gulf for further discoveries, he at first refused: but the king, desirous of having the most exact information possible of all things to be found in the gulf, repeated his solicitations; and, to give them still greater weight, produced a larger cup than the former, and added also a purse of gold. Upon these considerations the unfortunate diver once again plunged into the whirlpool, and was never heard of more.”

To obviate the inconveniencies of diving to those who have not the extraordinary powers of the diver above mentioned, different instruments have been contrived. The chief of these is the diving-bell; which is most conveniently made in form of a truncated cone, the smaller base being closed, and the larger open. It is to be poised with lead; and so suspended, that

Diving. the vessel may sink full of air, with its open basis downward, and as near as may be in a situation parallel to the horizon, so as to close with the surface of the water all at once.

Under this coverle the diver sitting, sinks down with the included air to the depth desired: and if the cavity of the vessel contain a tun of water, a single man may remain a full hour, without much inconvenience, at five or six fathoms deep. But the lower you go, still the included air contracts itself according to the weight of the water which compresses it: so that at 33 feet deep the bell becomes half full of water, the pressure of the incumbent water being then equal to that of the atmosphere; and at all other depths the space occupied by the compressed air in the upper part of the bell will be to the under part of its capacity filled with water, as 33 feet to the surface of the water in the bell below the common surface thereof. And this condensed air being taken in with the breath soon insinuates itself into all the cavities of the body, and has no ill effect, provided the bell be permitted to descend so slowly as to allow time for that purpose. One inconvenience that attends it, is found in the ears, within which there are cavities which open only outwards, and that by pores so small as not to give admission even to the air itself, unless they be dilated and distended by a considerable force. Hence, on the first descent of the bell, a pressure begins to be felt on the ear; which, by degrees, grows painful, till the force overcoming the obstacle, what constricts these pores yields to the pressure, and letting some condensed air slip in, presently ease ensues. The bell descending lower, the pain is renewed, and again eased in the same manner. But the greatest inconvenience of this engine is, that the water entering it, contracts the bulk of air into a small compass, it soon heats and becomes unfit for respiration; so that there is a necessity for its being drawn up and renewed.

“The invention of this bell, (says Professor Beck-Hist. of mann), is generally assigned to the 16th century; *Invent.* and I am of opinion that it was little known before that period. We read, however, that in the time of Aristotle divers used a kind of kettle, to enable them to continue longer under the water; but the manner in which it was employed is not clearly described. The oldest information which we have of the use of the diving-bell in Europe, is that of John Taifnier, who was born in Hainault in 1509, had a place at court under Charles V. whom he attended on his voyage to Africa. He relates in what manner he saw at Toledo, in the presence of the emperor and several thousand spectators, two Greeks let themselves down under water, in a large inverted kettle, with a burning light, and rise up again without being wet. It appears that this art was then new to the emperor and the Spaniards, and that the Greeks were caused to make the experiment in order to prove the possibility of it.”

“When the English, in 1588, dispersed the Spanish fleet, called the Invincible Armada, part of the ships went to the bottom, near the Isle of Mull, on the western coast of Scotland; and some of these, according to the account of the Spanish prisoners, contained great riches. This information excited, from time to time, the avarice of speculators, and gave rise to several attempts

Diving. tempts to procure part of the lost treasure. In the year 1665, a person was so fortunate as to bring up some cannon, which, however, were not sufficient to defray the expences. Of these attempts, and the kind of diving-bell used in them, the reader will find an account in a work printed at Rotterdam in 1669, and entitled *G. Sinclari Ars nova et magna gravitatis et levitatis*. In the year 1680, William Phipps, a native of America, formed a project for searching and unloading a rich Spanish ship sunk on the coast of Hispaniola; and represented his plan in such a plausible manner, that King Charles II. gave him a ship, and furnished him with every thing necessary for the undertaking. He set sail in the year 1683; but being unsuccessful, returned again in great poverty, though with a firm conviction of the possibility of his scheme. By a subscription promoted chiefly by the duke of Albemarle, the son of the celebrated Monk, Phipps was enabled, in 1687, to try his fortune once more, having previously engaged to divide the profit according to the twenty shares of which the subscription consisted. At first all his labour proved fruitless; but at last, when his patience was almost entirely exhausted, he was so lucky as to bring up, from the depth of six or seven fathoms, so much treasure that he returned to England with the value of two hundred thousand pounds sterling. Of this sum he himself got about sixteen, others say twenty thousand, and the duke ninety thousand pounds. After he came back, some persons endeavoured to persuade the king to seize both the ship and the cargo, under a pretence that Phipps, when he solicited for his majesty's permission, had not given accurate information respecting the business. But the king answered, with much greatness of mind, that he knew Phipps to be an honest man, and that he and his friends should share the whole among them had he returned with double the value. His majesty even conferred upon him the honour of knighthood, to show how much he was satisfied with his conduct. We know not the construction of Phipps's apparatus: but of the old figures of a diving-machine, that which approaches nearest to the diving-bell is in a book on fortification by Lorini; who describes a square box bound round with iron, which is furnished with windows, and has a stool affixed to it for the diver. This ingenious contrivance appears, however, to be older than that Italian; at least he does not pretend to be the inventor of it.

"In the year 1617, Francis Kessler gave a description of his water-armor, intended also for diving, but which cannot really be used for that purpose. In the year 1671, Witsen taught, in a better manner than any of his predecessors, the construction and use of the diving-bell; but he is much mistaken when he says that it was invented at Amsterdam. In 1679 appeared, for the first time, Borelli's well known work *de motu animalium*; in which he not only described the diving-bell, but also proposed another, the impracticability of which was shewn by James Bernouilli. When Sturm published his *Collegium curiosum* in 1678, he proposed some hints for the improvement of this machine, on which remarks were made in the *Journal des Sçavans*."

To obviate the difficulties of the diving-bell, Dr Halley, contrived some further apparatus, whereby not only to recruit and refresh the air from time to time, but

also to keep the water wholly out of it at any depth. The manner in which this was effected, he relates in the following words:

"The bell I made use of was of wood, containing about 60 cubic feet in its concavity; and was of the form of a truncated cone, whose diameter at the top was three feet, and at the bottom five. This I coated with lead so heavy that it would sink empty; and I distributed the weight so about its bottom, that it would go down in a perpendicular direction, and no other. In the top I fixed a strong but clear glass, as a window, to let in the light from above; and likewise a cock to let out the hot air that had been breathed: and below, about a yard under the bell, I placed a stage which hung by three ropes, each of which was charged with about one hundred weight to keep it steady. This machine I suspended from the mast of a ship by a sprit, which was sufficiently secured by stays to the mast head, and was directed by braces to carry it overboard clear of the ship's side, and to bring it again within board as occasion required.

"To supply air to this bell when under water, I caused a couple of barrels of about 36 gallons each to be cased with lead, so as to sink empty; each of them having a bung-hole in its lowest parts to let in the water, as the air in them condensed on their descent; and to let it out again when they were drawn up full from below. And to a hole in the uppermost part of these barrels, I fixed a leathern trunk or hose well liquored with bees wax and oil, and long enough to fall below the bung-hole, being kept down by a weight appended: so that the air in the upper part of the barrels could not escape, unless the lower ends of these hose were first lifted up.

"The air-barrels being thus prepared, I fitted them with tackle proper to make them rise and fall alternately, after the manner of two buckets in a well; which was done with so much ease, that two men, with less than half their strength, could perform all the labour required; and in their descent they were directed by lines fastened to the under edge of the bell, the which passed through rings on both sides the leathern hose in each barrel; so that, sliding down by these lines, they came readily to the hand of a man who stood on the stage on purpose to receive them, and to take up the ends of the hose into the bell. Through these hose, as soon as their ends came above the surface of the water in the barrels, all the air that was included in the upper parts of them was blown with great force into the bell; whilst the water entered at the bung-holes below, and filled them; and as soon as the air of one barrel had been thus received, upon a signal given, that was drawn up, and at the same time the other descended; and, by an alternate succession, furnished air so quick, and in so great plenty, that I myself have been one of five who have been together at the bottom in nine or ten fathom water, for above an hour and a half at a time, without any sort of ill consequence; and I might have continued there as long as I pleased, for any thing that appeared to the contrary. Besides, the whole cavity of the bell was kept entirely free from water, so that I sat on a bench which was diametrically placed near the bottom, wholly dressed, with all my clothes on. I only observed, that it was necessary to be let down gradually at first, as about 12 feet at a time; and then

Diving.

Diving.

then to stop and drive out the air that entered, by receiving three or four barrels of fresh air before I descended further. But, being arrived at the depth designed, I then let out as much of the hot air that had been breathed, as each barrel would replenish with cool, by means of the cock at the top of the bell; through whose aperture, though very small, the air would rush with so much violence, as to make the surface of the sea boil, and to cover it with a white foam, notwithstanding the weight of the water over us.

“ Thus I found that I could do any thing that required to be done just under us; and that, by taking off the stage, I could, for a space as wide as the circuit of the bell, lay the bottom of the sea so far dry, as not to be overshoes thereon. And, by the glass window, so much light was transmitted, that when the sea was clear, and especially when the sun shone, I could see perfectly well to write or read; much more to fasten or lay hold on any thing under us that was to be taken up. And, by the return of the air-barrels, I often sent up orders written with an iron pen, on small plates of lead, directing how to move us from place to place as occasion required. At other times, when the water was troubled and thick, it would be as dark as night below; but in such cases I have been able to keep a candle burning in the bell as long as I pleased, notwithstanding the great expence of air necessary to maintain flame.—By an additional contrivance, I have found it not impracticable, for a diver to go out of an engine to a good distance from it, the air being conveyed to him with a continued stream, by small flexible pipes; which pipes may serve as a clue, to direct him back again when he would return to the bell.”

Plate CLXXVI. fig. 1. shows Dr Halley's diving-bell, with the divers at work. DBLK RIMP represents the body of the bell. D, the glass which serves as a window. B, the cock for letting out the air which has been breathed. LM, the seats. C, one of the air-barrels. P, H, two of the divers. F, another diver at a distance from the bell, and breathing through the flexible tube K.—This diver is supposed to have a head-piece of lead, made to fit quit close about his shoulders; this head-piece was capable of containing as much air as would supply him for a minute or two. When he had occasion for more air, he turned a cock at F, by which means a communication was opened with the air in the bell, and thus he could receive a new supply at pleasure.

Since the invention of this diving machine, there has been one contrived by Mr Triewald, F. R. S. and military architect to the king of Sweden, which for a single person, is in some respects thought to be more eligible than Dr Halley's, and is constructed as follows: AB is the bell, which is sunk by lead weights DD hung to its bottom. This bell is of copper, and tinned all over in the inside, which is illuminated by three strong convex lenses, G, G, G, with copper lids H, H, H, to defend them. The iron ring or plate E serves the diver to stand on when he is at work; and is suspended at such a distance from the bottom of the bell by the chains F, F, F, that when the diver stands upright, his head is just above the water in the bell, where the air is much better than higher up, because

Diving.

it is colder, and consequently more fit for respiration. But as the diver must always be within the bell, and his head of course in the upper part, the inventor has contrived, that even there, when he has breathed the hot air as well as he can, he may, by means of a spiral copper tube, *b c*, placed close to the inside of the bell, draw the cooler and fresher air from the lowermost parts; for which purpose, a flexible leather tube, about two feet long, is fixed to the upper end of the copper tube at *b*; and to the other end of this tube is fixed an ivory mouth-piece, by which the diver draws in the air.

The greatest improvement, however, which the diving bell ever received, or probably can receive, was from the late Mr Spalding of Edinburgh. A section of his improved diving-bell is represented in fig. 3. This construction is designed to remedy some inconveniences of Dr Halley's which are very evident, and of very dangerous tendency. These are, 1. By Dr Halley's construction, the sinking or raising of the bell depends entirely on the people who are at the surface of the water; and as the bell even when in the water has a very considerable weight, the raising it not only requires a great deal of labour, but there is a possibility of the rope breaking by which it is raised, and thus every person in the bell would inevitably perish. 2. As there are, in many places of the sea, rocks which lie at a considerable depth, the figure of which cannot possibly be perceived from above, there is danger that some of their ragged prominences may catch hold of one of the edges of the bell in its descent, and thus overfet it before any signal can be given to those above, which would infallibly be attended with the destruction of the people in the bell; and as it must always be unknown, before trial, what kind of a bottom the sea has in any place, it is plain, that without some contrivance to obviate this last danger, the descent in Dr Halley's diving-bell is not at all eligible.

How these inconveniences are remedied by Mr Spalding's new construction will be easily understood from the following description.—ABCD represents a section of the bell, which is made of wood; *e, e*, are iron hooks, by means of which it is suspended by ropes Q B F *e*, and Q A E R *e*, and Q S, as expressed in the figure; *c, c*, are iron hooks, to which are appended lead weights, that keep the mouth of the bell always parallel to the surface of the water, whether the machine taken altogether is lighter or heavier than an equal bulk of water. By these weights alone, however, the bell would not sink; another is therefore added, represented at L; and which can be raised or lowered at pleasure, by means of a rope passing over the pulley *a*, and fastened to one of the sides of the bell at M. As the bell descends, this weight, called by Mr Spalding the *balance-weight*, hangs down a considerable way below the mouth of the bell. In case the edge of the bell is caught by any obstacle, the balance-weight is immediately lowered down so that it may rest upon the bottom. By this means the bell is lightened so that all danger of overfetting is removed; for being lighter, without the balance-weight, than an equal bulk of water, it is evident that the bell will rise, as well as the length of the rope affixed to the balance-weight will allow it. This weight, therefore, will serve as a kind

Fig. 1. Halley's Diving Bell. Fig. 2. Freenwalds.



Fig. 3. Spaldings.

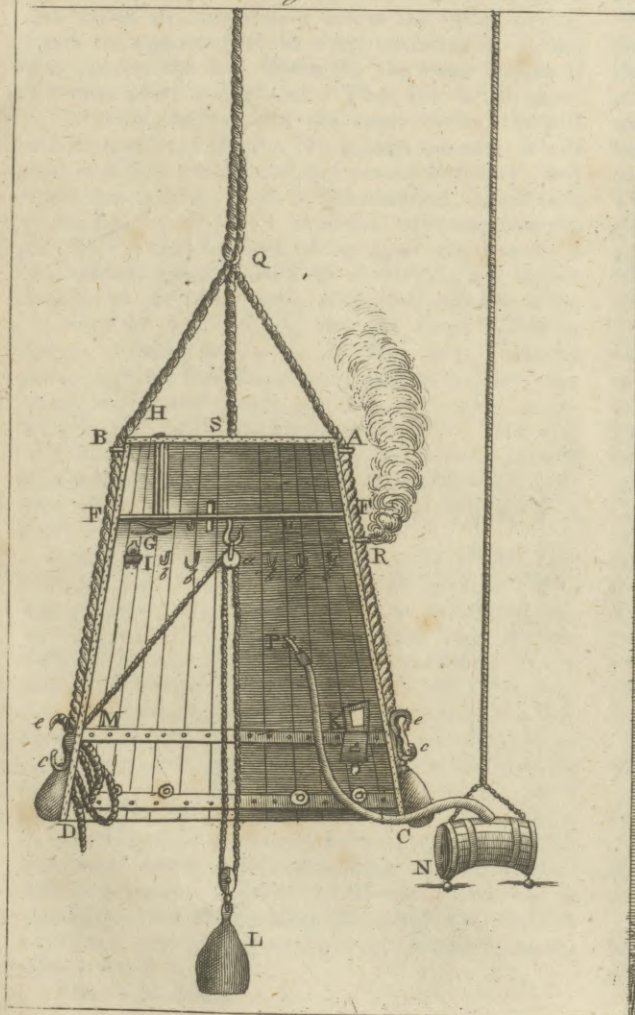
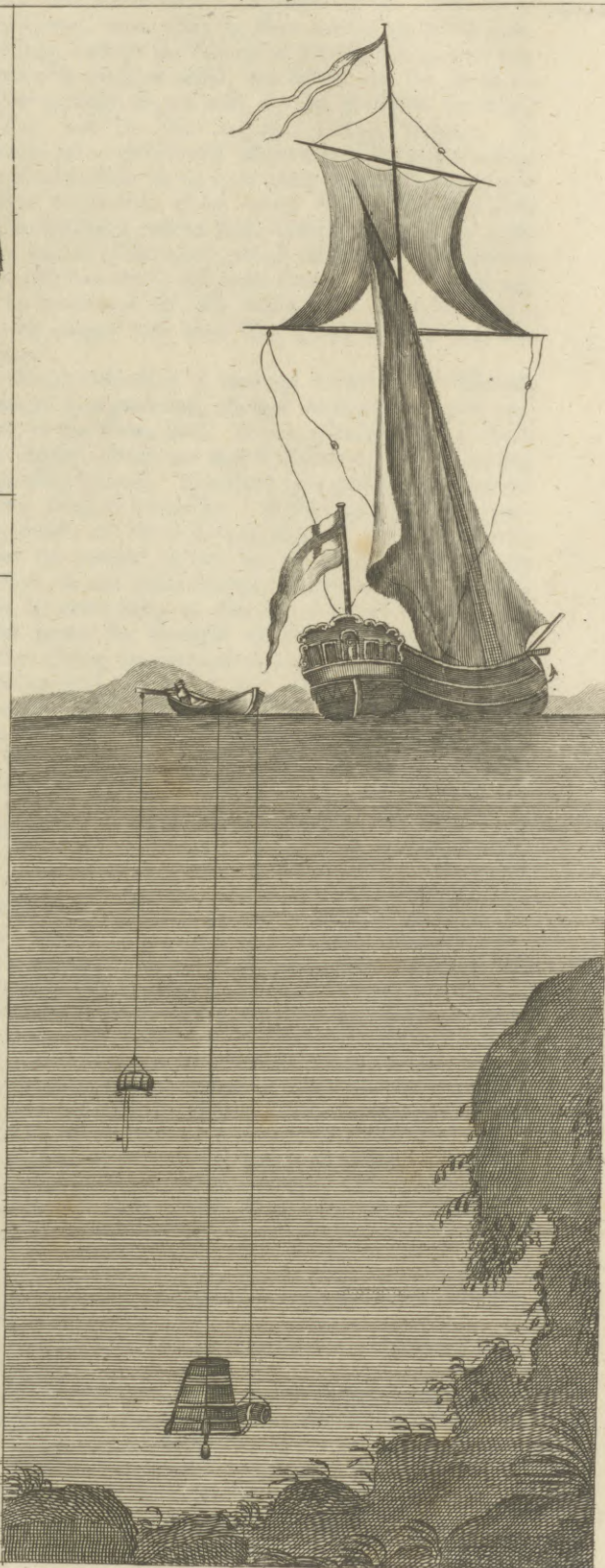
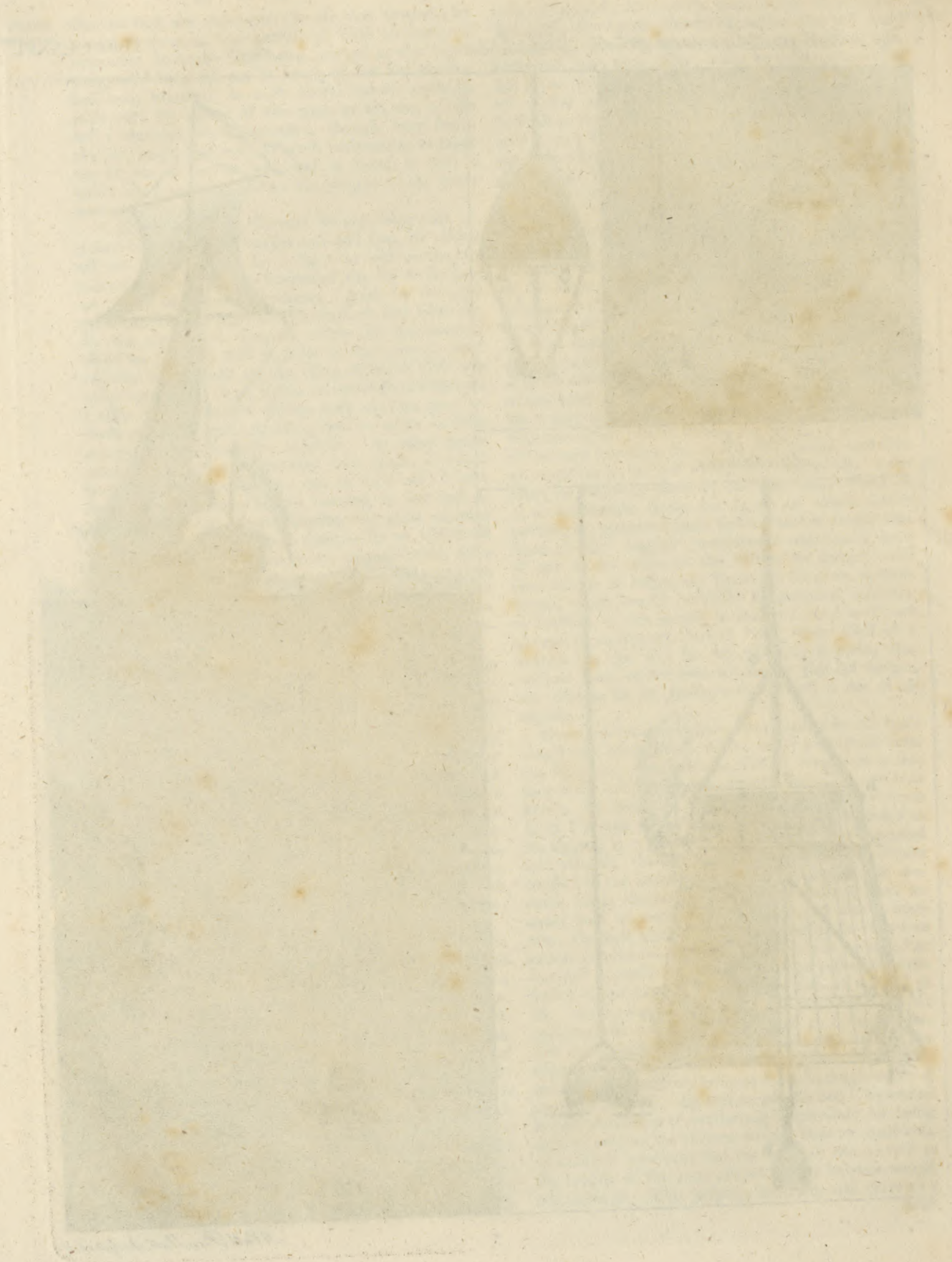


Fig. 4. Plate CLXXVI.





Diving. kind of anchor to keep the bell at any particular depth which the divers may think necessary; or by pulling it quite up, the descent may be continued to the very bottom.

By another very ingenious contrivance, Mr Spalding rendered it possible for the divers to raise the bell, with all the weights appended to it, even to the surface, or to stop at any particular depth, as they think proper; and thus they could still be safe, even though the rope designed for pulling up the bell was broke. For this purpose the bell is divided into two cavities, both of which are made as tight as possible. Just above the second bottom EF, are small slits in the sides of the bell; through which the water entering as the bell descends, displaces the air originally contained in this cavity, which flies out at the upper orifice of the cock GH. When this is done, the divers turn the handle G, which stops the cock; so that if any more air was to get into the cavity AEFD, it could not longer be discharged through the orifice H as before. When this cavity is full of water, the bell sinks; but, when a considerable quantity of air is admitted, it rises. If, therefore, the divers have a mind to raise themselves, they turn the small cock *g*, by which a communication is made between the upper and under cavities of the bell. The consequence of this is, that a quantity of air immediately enters the upper cavity, forces out a quantity of the water contained in it, and thus renders the bell lighter by the whole weight of the water which is displaced. Thus, if a certain quantity of air is admitted into the upper cavity, the bell will descend very slowly; if a greater quantity, it will neither ascend nor descend, but remain stationary; and if a larger quantity of air is still admitted, it will arise to the top. It is to be observed, however, that the air which is thus let out into the upper cavity must be immediately replaced from the air-barrel; and the air is to be let out very slowly, or the bell will rise to the top with so great velocity that the divers will be in danger of being shaken out of their seats. But, by following these directions, every possible accident may be prevented, and people may descend to great depths without the least apprehension of danger. The bell also becomes so easily manageable in the water, that it may be conducted from one place to another by a small boat with the greatest ease, and with perfect safety to those who are in it.

Instead of wooden seats used by Dr Halley, Mr Spalding made use of ropes suspended by hooks *bbb*; and on these ropes the divers may sit without any inconvenience. I and K are two windows made of thick strong glass, for admitting light to the divers. N represents an air-cask with its tackle, and OCP the flexible pipe through which the air is admitted to the bell. In the ascent and descent of this cask the pipe is kept down by a small weight appended, as in Dr Halley's machine. R is a small cock by which the hot air is discharged as often as it becomes troublesome. Fig. 4. is a representation of the whole diving apparatus, which it is hoped will be readily understood without any further explanation. Two air-barrels are represented in this figure; but Mr Spalding was of opinion, that one capable of containing 30 gallons is sufficient for an ordinary machine.

VOL. VII. Part I.

We are told of another method put in practice by a gentleman of Devonshire. He has contrived a large case of strong leather, perfectly water-proof, which may hold about half a hoghead of air. This is so contrived, that, when he shuts himself up in this case, he may walk at the bottom of the sea, and go into any part of a wrecked vessel, and deliver out the goods.— This method, we are told, he has practised for many years, and has thus acquired a large fortune. It would be a considerable improvement on this machine to condense the air in it as much as possible before the diver descended; as he would thus be furnished with an atmosphere endued with elasticity sufficient to resist the weight of the water, which otherwise would squeeze his case into much less room than it originally took up. The condensed air also would serve for respiration a much longer time than that which is in its ordinary state.

Diving-Bladder, a machine invented by Borelli, and by him preferred, though without any good reason, to the diving-bell. It is a globular vessel of brass or copper, about two feet in diameter, which contains the diver's head. It is fixed to a goat's-skin habit exactly fitted to his person. Within the vessel are pipes; by means of which a circulation of air is contrived; and the person carries an air-pump by his side by which he can make himself heavier or lighter as fishes do, by contracting or dilating their air-bladder. By this means he thought all the objections to which other diving machines are liable were entirely obviated, and particularly that of want of air; the air which had been breathed, being, as he imagined, deprived of its noxious qualities by circulating through the pipes. These advantages, however, it is evident, are only imaginary. The diver's limbs, being defended from the pressure of the water only by a goat's skin, would infallibly be crushed, if he descended to any considerable depth; and from the discoveries now made by Dr Priestley and others, it is abundantly evident, that air, which is once rendered foul by breathing, cannot in any degree be restored by circulation through pipes. Concerning the use of copper machines in general, Mr Spalding favoured us with the following curious observation, namely, That when a person has breathed in them a few minutes, he feels in his mouth a very disagreeable brassy taste, which continues all the time he remains in the vessel; so that, on this account, copper seems by no means an eligible material. This taste most probably arises from the action of the alkalescent effluvia of the body upon the copper; for volatile alkali is a strong dissolvent of this metal: but how these effluvia volatilize the copper in such a manner as to make the taste of it sensible in the mouth, it is not easy to say.

DIVINITY, properly signifies the nature, quality, and essence of God.

DIVINITY is also used in the same sense with theology.

DIVISIBILITY, that property by which the particles of matter in all bodies are capable of a separation or division from each other.

The Peripatetics and Cartesians hold divisibility to be an affection of all matter. The Epicureans, again, allow it to agree to every physical continuum; but

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Diving-Bladder
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Divisibility.

Divisibility. they deny that this affection agrees to all bodies, for the primary corpuscles or atoms they maintain to be perfectly infecable and indivisible.

As it is evident that body is extended, so it is no less evident that it is divisible; for since no two particles of matter can exist in the same place, it follows, that they are really distinct from each other; which is all that is meant by being divisible. In this sense the least conceivable particle must still be divisible, since it will consist of parts which will be really distinct. To illustrate this by a familiar instance. Let the least imaginable piece of matter be conceived lying on a smooth plain surface, it is evident the surface will not touch it everywhere; those parts, therefore, which it does not touch may be supposed separable from the others, and so on as far as we please; and this is all that is meant when we say matter is infinitely divisible.

Plate
CLXXV.

The infinite divisibility of mathematical quantity is demonstrated thus geometrically. Suppose the line AC perpendicular to BF; and another, as GH, at a small distance from it, also perpendicular to the same line; with the centres CCC, &c. describe circles cutting the line GH in the points *e e e*, &c. Now the greater the radius AC is, the less is the part *e H*. But the radius may be augmented in infinitum; so long, therefore, the part *e H* may be divided into still less portions; consequently it may be divided in infinitum.

All that is supposed in strict geometry (says Mr Maclaurin) concerning the divisibility of magnitude, amounts to no more than that a given magnitude may be conceived to be divided into a number of parts equal to any given or proposed number. It is true, that the number of parts into which a given magnitude may be conceived to be divided, is not to be fixed or limited, because no given number is so great but a greater may be conceived and assigned; but there is not, therefore, any necessity of supposing the number of parts actually infinite; and if some have drawn very abstruse consequences from such a supposition, yet geometry ought not to be loaded with them.

How far matter may actually be divided, may in some measure be conceived from hence, that a piece of wire gilt with so small a quantity as eight grains of gold, may be drawn out to a length of 13,000 feet, the whole surface of it still remaining covered with gold. We have also a surprising instance of the minuteness of some parts of matter from the nature of light and vision. Let a candle be lighted, and placed in an open plain, it will then be visible two miles round; and consequently, was it placed two miles above the surface of the earth, it would fill with luminous particles a sphere whose diameter was four miles, and that before it had lost any sensible part of its weight. A quantity of vitriol being dissolved, and mixed with 9000 times as much water, will tinge the whole; consequently will be divided into as many parts as there are visible portions of matter in that quantity of water. There are perfumes, which, without a sensible diminution of their quantity, shall fill a very large space with their odoriferous particles; which must therefore be of an inconceivable smallness, since there will be a sufficient number in every part of that space sensibly to affect the organ of smelling. Dr Keill demonstrates, that any particle of matter, how small soever, and any

finite space, how large soever, being given, it is possible for that small particle of matter to be diffused through all that space, and to fill it in such a manner, as that there shall be no pore in it whose diameter shall exceed any given line.

The chief objections against the divisibility of matter in infinitum are, That an infinite cannot be contained by a finite; and that it follows from a divisibility in infinitum, either that all bodies are equal, or that one infinite is greater than another. But the answer to these is easy; for the properties of a determined quantity are not to be attributed to an infinite considered in a general sense; and who has ever proved that there could not be an infinite number of infinitely small parts in a finite quantity, or that all infinities are equal? The contrary is demonstrated by mathematicians in innumerable instances. See the article INFINITY, and 'S *Gravesande Elem. Mathem.* l. i. c. 4.

DIVISION, in general, is the separating a thing into two or more parts.

Mechanical Division, signifies that separation which is occasioned in the parts of a body by help of mechanical instruments.—The mechanical division of bodies does indeed separate them into smaller, homogeneous, similar parts; but this separation cannot extend to the primary integrant molecules of any body; and consequently is incapable of breaking what is properly called their *aggregation*; also, no union is formed betwixt the divided and dividing bodies, in which respect division essentially differs from dissolution.

Division is not properly a chemical operation. It is only employed preparatorily to facilitate other operations, and particularly solution. For this purpose it is very useful, as it increases the quantity of surface, and consequently the points of contact of any body.—Different methods are used to divide bodies according to their nature. Those which are tenacious and elastic, as horns and gums, require to be cut, rasped, or filed. Metals, because of their ductility, require the same treatment: but as they are also fusible, they may be quickly and conveniently reduced into grains small enough for most operations, by pouring them, when melted, into water. All brittle bodies may be reduced conveniently into fine parts by being bruised in a mortar with a pestle. Very hard bodies, such as glass, crystals, stones, particularly those of the vitrifiable kind, before they are pounded, ought to be plunged when red hot into water, by which they are split and cracked, and rendered more easily pulverable. Bodies of this kind may also be bruised or ground by means of a hard and flat stone, upon which the matter is to be put, and bruised by another hard stone so small as to be held and moved upon the larger stone with the hand. The larger stone is called a *porphyry*, from its being generally of that kind of stone; and the operation is called *porphyrisation*. Instead of porphyrisation, a mill may be used, composed of a hard grit millstone, moving round upon another stone of the same kind, which must be fixed: in the upper stone is a groove or channel, through which the matter to be ground passes. By this method a substance may be more quickly reduced to a fine powder than by porphyrisation. But these mills can be only employed for considerable quantities of matter.

These methods of mechanically dividing bodies are attended

Division
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Dium.

attended with some practical inconveniences; the most considerable of which is, that some parts of the dividing instruments are always struck off, and mixed with the matter to be divided. This may greatly affect the operations. For instance, instruments of iron and copper furnish metallic colouring particles, and copper is very prejudicial to health. Porphyry is coloured by a reddish brown matter, which injures the colour of crystal glasses, enamels, and porcelains made with matters ground upon this stone. These matters therefore must be cleaned after their porphyzation, or else no instruments capable of injuring the intended operations ought to be employed. Thus, for the preparation of all medicines to be taken internally, no copper instruments, as mortars, pestles, &c. ought to be used; those made of iron are preferable: and, instead of porphyries, mortars, grinding stones and millstones made of hard and white stones, ought to be employed for substances which are to enter into the composition of enamels, crystal glass, and porcelain, the whiteness of which is a most necessary quality.

DIVISION, in *Algebra*. See ALGEBRA.

DIVISION, in *Arithmetic*. See ARITHMETIC, N^o II.

DIVISIONS of an Army, in the military art, the several brigades and squadrons into which it is cantoned.

DIVISIONS of a Battalion, are the several platoons into which it is divided in marching or firing, each of which is commanded by an officer.

DIVISION, in sea affairs, a select number of ships in a fleet or squadron of men of war, distinguished by a particular flag or pendant, and usually commanded by a general officer. A squadron is commonly ranged into three divisions, the commanding officer of which is always stationed in the centre.

When a fleet consists of 60 sail of the line, that is, of ships having at least 60 cannon each, the admiral divides it into three squadrons, each of which has its divisions and commanding officers. Each squadron has its proper colours, according to the rank of the admiral who commands it, and every division its proper mast. Thus the white flag denotes the first division of France; the white and blue the second; and the third is characterized by the blue. In Britain, the first admiral, or the admiral of the fleet, displays the union flag at the main-top-mast head; next follows the white flag with St George's cross; and afterwards the blue. The private ships carry pendants of the same colour with their respective squadrons at the mast of their particular divisions; so that the last ship in the division of the blue squadron carries a blue pendant at her mizen-top-mast head.

DIVISOR, in *Arithmetic*. See ARITHMETIC, N^o II.

DIUM, in *Ancient Geography*, a town of Chalcidice in Macedonia, near Mount Athos. Also a promontory of Crete, on the north side of the island.—A third *Dium*, a promontory of Eubœa; or a town of that name in Eubœa, near the promontory Cenæum, on the north-west side of the island, called also *Dia*.—A fourth *Dium* in Pieria of Macedonia, on the west side of the Sinus Thermaicus. Strabo and Livy place it on the borders of Pieria to the south, at the foot of Mount Olympus towards Thessaly. That it was a

splendid city, appears from Polybius; who relates, that its gymnasium and walls were overthrown by the Ætolians. From which overthrow, however, it again recovered, Alexander adding new splendour to it, by the brass statues cast by Lysippus, and erected there in memory of the slain at the Granicus: an ornament which was continued down to the time of the Romans; who made it a colony, called *Dienfis*.—A fifth *Dium* beyond Jordan, near Pella in the Piræa.

DIVODURUM, in *Ancient Geography*, a town of the Mediatrix, in Gallia Belgica; situated on the Moselle, on the spot where now Metz stands: now a city of Lorraine. E. Long. 6. o. N. Lat. 49. 16.

DIVORCE, a breach or dissolution of the bond of marriage. See MARRIAGE, and LAW Index.

Divorce is of two kinds: the one, *à vinculo matrimonii*, which alone is properly *divorce*; the other, *à mensa et thoro*, “a separation from bed and board.”

The woman divorced *à vinculo matrimonii* receives all again that she brought with her: the other has a suitable separate maintenance allowed her out of her husband's effects. The first only happens through some essential impediment, as consanguinity or affinity within the degrees forbidden, pre-contract, impotency, adultery, &c. of which impediments the canon law allows 14, comprehended in these verses:

*Error, conditio, votum, cognatio, crimen,
Cultus, disparitas, vis, ordo, ligamen, honestas,
Si sis affinis, si forte coire nequibus,
Si parochi et duplicis desit presentia testis,
Raptave sit mulier, nec parti reddita tuta.*

Divorce is a spiritual judgment, and therefore is passed in the spiritual court. Under the old law, the woman divorced was to have of her husband a writing, as St Jerome and Josephus testify, to this effect: *I promise, that hereafter I will lay no claim to thee*; which was called a *bill of divorce*.

Divorce was allowed of in great latitude both among the Pagans and Jews. At Rome, barrenness, age, disease, madness, and banishment, were the ordinary causes of divorce. Spurius Carvilius, between 500 and 600 years after the building of Rome, under the consulship of M. Attilius, and P. Valerius, was the first who put away his wife because she was barren; though Plutarch, in his Roman Questions, maintains, that Domitian was the first who permitted divorce. Justinian afterwards added impotence, a vow of chastity, and the profession of a monastic life, as valid reasons of divorce.

The Roman lawyers distinguish between *repudium* and *divortium*; making the former to be the breaking of a contract or espousal, and the latter separation after matrimony. Romulus enacted a severe law, which suffered not a wife to leave her husband, but gave the man the liberty of turning off his wife, either upon poisoning her children, counterfeiting his private keys, or for the crime of adultery; but if the husband on any other occasion put her away, he ordered one moiety of his estate for the wife, and the other to the goddess Ceres: besides an atonement to the gods of the earth. However, in later times, the women as well as the men might sue a divorce. The common way of divorcing was by sending a bill to the woman, containing the reasons of separation, and the tender of all her goods which

Divodu-
rum,
Divorce.

Divorce. she brought with her: and this was called *repudium mittere*; or else it was performed in her presence, and before seven witnesses, and accompanied with the formalities of tearing the writings, refunding the portion, taking away the keys, and turning the woman out of doors.

The Grecian laws concerning divorces were different: The Cretans allowed divorce to any man that was afraid of having too many children. The Spartans seldom divorced their wives; and it was extremely scandalous for a woman to depart from her husband. The Athenians allowed divorce on very small grounds, by a bill, containing the reason of the divorce, and approved, if the party appealed, by the chief magistrate; and women also were allowed to leave their husbands on just occasions. Persons divorcing their wives were obliged to return their portions; otherwise, the Athenian laws obliged them to pay nine oboli a month for alimony. The terms expressing the separation of men and women from each other were different; the men were said *αποπεμπειν* or *απολειπειν*, to *dismiss their wives*; but wives, *απολειπειν*, to *leave their husbands*.

Paley's Moral and Political Philosophy, p. 273.

“The law of Moses (Mr Paley observes), for reasons of local expediency, permitted the Jewish husband to put away his wife; but whether for every cause, or for what cause, appears to have been controverted amongst the interpreters of those times. Christ, the precepts of whose religion were calculated for more general use and observation, revokes this permission, as given to the Jews ‘for their hardness of heart,’ and promulges a law which was thenceforward to confine divorces to the single cause of adultery in the wife: ‘Whosoever shall put away his wife, except it be for fornication, and shall marry another, committeth adultery; and who so marrieth her which is put away, doth commit adultery,’ Mat. xix. 9.

“Inferior causes may justify the separation of husband and wife, although they will not authorize such a dissolution of the marriage contract as would leave either at liberty to marry again: for it is that liberty in which the danger and mischief of divorces principally consist. The law of this country, in conformity to our Saviour’s injunction, confines the dissolution of the marriage contract to the single case of adultery in the wife; and a divorce even in that case can only be brought about by the operation of an act of parliament, founded upon a previous sentence in the spiritual court, and a verdict against the adulterer at common law: which proceedings taken together compose as complete an investigation of the complaint as a cause can receive. It has lately been proposed to the legislature to annex a clause to these acts, restraining the offending party from marrying with the companion of her crime, who by the course of proceeding is always known and convicted: for there is reason to fear, that adulterous connexions are often formed with the prospect of bringing them to this conclusion; at least, when the seducer has once captivated the affection of a married woman, he may avail himself of this tempting argument to subdue her scruples, and complete his victory; and the legislature, as the business is managed at present, assists by its interposition the criminal design of the offenders, and confers a privilege where it ought to inflict a punishment. The proposal deserved an experiment; but something more penal, it is apprehended, will be found

necessary to check the progress of this alarming depravity. Whether a law might not be framed, directing *the fortune of the adulterers to descend as in case of her natural death*; reserving, however, a certain proportion of the produce of it, by way of annuity, for her subsistence (such annuity in no case to exceed a certain sum); and also so far suspending the estate in the hands of the heir, as to preserve the inheritance to any children she might bear to a second marriage, in case there was none to succeed in the place of their mother by the first: whether such a law would not render female virtue in higher life less vincible, as well as the seducers of that virtue less urgent in their suit, I would recommend to the deliberation of those who are willing to attempt the reformation of this important but most incorrigible class of the community. A passion for splendour, for expensive amusements and distinctions, is commonly found in that description of women who would become the subjects of such a law, not less inordinate than their other appetites. A severity of the kind proposed applies immediately to that passion. And there is no room for any complaint of injustice, since the provisions above stated, with others which might be contrived, confine the punishment, so far as it is possible, to the person of the offender; suffering the estate to remain to the heir, or within the family of the ancestor from whom it came, or to attend the appointments of his will.

“Sentences of the ecclesiastical courts, which release the parties *a vinculo matrimonii*, by reason of impuberty, frigidity, consanguinity within the prohibited degrees, prior marriage, or want of the requisite consent of parents or guardians, are not dissolutions of the marriage contract, but judicial declarations that there never was any marriage; such impediment subsisting at the time as rendered the celebration of the marriage rite a mere nullity. And the rite itself contains an exception of these impediments. The man and woman to be married are charged, “if they know any impediment why they may not be lawfully joined together, to confess it:” and assured, “that so many as are coupled together, otherwise than God’s word doth allow, are not joined together by God, neither is their matrimony lawful;” all which is intended by way of solemn notice to the parties, that the vow they are about to make will bind their consciences and authorize their cohabitation only upon the supposition that no legal impediment exist.”

DIURETICS (from *δια*, *by*, and *ουρον*, *urine*), medicines which provoke a discharge by urine.

Such is water drank plentifully; white wine drank in a morning; alkaline salts of all kinds; sea salt, sal gemmæ, nitre, borax, alum, tartar, sal ammoniac, whey, sour milk, lemon juice, &c. Aqueous liquors are generally diuretic, especially if mixed with salt, and drank cold. Fermented liquors are the least diuretic of all; and the less so, as they are the fatter. Sharp thin sour wines, Rhenish, &c. as also acid spirits of vinegar, salt, sulphur, alum, vitriol, &c. asparagus, bitter almonds, smallage, eryngium, eupatorium, fassafra, &c. are all diuretics.

DIURNAL, in *Astronomy*, something relating to day; in opposition to *nocturnal*, which regards the night.

DIVUS, DIVA, in antiquity, appellations given to men

Divorce
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Divus.

Dizziness
||
Dobuni.

men and women who had been deified, or placed in the number of the gods. See DEIFICATION, &c.

Hence it is, that on medals struck for the consecration of an emperor or empress, they give them the title of *divus* or *diva*: for example, DIVUS JULIUS. DIVO ANTONINO PIO. DIVO PIO. DIVO CLAUDIO. DIVA FAUSTINA AUG. &c.

DIZZINESS, in *Medicine*. See VERTIGO.

DO, in *Music*, a note of the Italian scale, corresponding to *ut* of the common gammut. See MUSIC.

DOBSON, WILLIAM, an eminent English portrait and history painter, born at London in 1610. He served an apprenticeship with one Peck, a stationer and picture-dealer; and owed his improvement to the copying some pictures of Titian and Van Dyck, whose manner he always retained. He had farther obligations to the latter of these artists; for it is said, that a picture of his painting being exposed at a shop on Snow-hill, Van Dyck passing by was struck with it exceedingly; and inquiring after the author, found him at work in a poor garret. Van Dyck had the generosity to equip him in a manner suitable to his merit. He presented him to King Charles I. who took him under his protection, kept him with him at Oxford all the time his majesty continued in that city, and not only sat to him several times for his picture, but caused the prince of Wales, Prince Rupert, and most of the lords of his court, to do so too. Mr Dodson, however, being somewhat loose and irregular in his way of life, was far from improving the many opportunities he had of making his fortune; and died very poor in 1647. at his house in St Martin's Lane.

DOBUNI, or BODUNI; an ancient people of Britain, who possessed the territory which now forms the counties of Oxford and Gloucester. Both the names of this British nation seem to have been derived from the low situation of a great part of the country which they inhabited: for both *Dovan* and *Bodun* signify "profound" or "low," in the ancient language of Gaul and Britain. The Dobuni are not mentioned among the British nations who resisted the Romans under Julius Cæsar, which was probably owing to the distance of their country from the scene of action; and before the next invasion under Claudius, they had been so much oppressed by their ambitious neighbours the Cattivellauni, that they submitted with pleasure to the Romans, in order to be delivered from that oppression. Cogidunus, who was at that time (as his name imports) prince of the Dobuni, recommended himself so effectually to the favour of the emperor Claudius, by his ready submission, and other means, that he was not only continued in the government of his own territories, but had some other states put under his authority. This prince lived so long, and remained so steady a friend and ally to the Romans, that his subjects, being habituated to their obedience in his time, never revolted, nor stood in need of many forts or forces to keep them in subjection. This is certainly the reason that we meet with so few Roman towns and stations in the country anciently inhabited by the Dobuni. The Durocornovium of Antoninus, and the Corinium of Ptolemy, are believed by antiquaries to have been the same place, the capital of the Dobuni, and situated at Cirencester in Gloucestershire, where there are many marks of a Roman station. Clevum or Glevum, in the

thirteenth iter of Antoninus, stood where the city of Gloucester now stands; and Abone, in the fourteenth iter, was probably situated at Avinton on the Severn. The country of the Dobuni was comprehended in the Roman province Britannia Prima.

DOCETÆ (from *δανειν*, to appear), in ecclesiastical history, the followers of Julius Cassianus, one of the Valentinian sect, towards the close of the second century, who revived a notion that had been adopted by a branch of the Gnostics, against whom St John, Ignatius, and Polycarp, had asserted the truth of the incarnation. They believed and taught, as their name imports, that the actions and sufferings of Jesus Christ were not in reality, but only in appearance.

DOCIMASIA, in Greek antiquity, a probation of the magistrates and persons employed in public business at Athens. It was performed publicly in the forum, where they were obliged to give account of themselves and their past life before certain judges. Among several questions proposed to them, we find the following: Whether they had been dutiful to their parents, had served in the wars, and had a competent estate?

DOCIMASTIC ART, a name given to the art of assaying by operations in small, the nature and quantity of metallic or other matters which may be obtained from mineral or other compound bodies. See REFINING and METALLURGY.

DOCIMENUM MARMOR, a name given by the ancients to a species of marble of a bright and clear white, much used in large and sumptuous buildings, such as temples and the like. It had its name from *Docimenos*, a city of Phrygia, afterwards called *Synaia*; near which it was dug, and from whence it was sent to Rome. It was accounted little inferior to the Parian in colour, but not capable of so elegant a polish; whence it was less used by the statuaries, or in other smaller works. The emperor Adrian is said to have used this marble in building the temple of Jupiter; and many others of the great works of the Romans are of it.

DOCK, in *Botany*. See RUMEX, BOTANY Index.

Dock, in the manege, is used for a large case of leather, as long as the dock of a horse's tail, which serves it for a cover. The French call the dock *trouffequeue*. It is made fast by straps to the crupper, and has leathern thongs that pass between his thighs, and along his flanks to the saddle straps, in order to keep the tail tight, and to hinder it from whisking about.

Dock, in maritime affairs, a sort of broad and deep trench formed on the side of a harbour, or on the banks of a river; and commodiously fitted either to build ships or receive them to be repaired and *breamed* therein. These sorts of docks have generally strong flood-gates to prevent the flux of the tide from entering the dock while the ship is under repair.—There are likewise docks of another kind, called *wet docks*, where a ship can only be cleaned during the recess of the tide, or in the interval between the time when the tide left her dry aground, and the period when it again reaches her by the return of the flood. Docks of the latter kind are not furnished with the usual flood-gates.

Dock-Yards, certain magazines containing all sorts of

Docetas
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Dock-Yards.

of :

Doctor. of naval stores and timber for ship-building. In England, the royal dock-yards are at Chatham, Portsmouth, Plymouth, Deptford, Woolwich, and Sheerness. His majesty's ships and vessels of war are generally moored at these ports during the time of peace; and such as want repairing are taken into the docks, examined, and refitted for service.

The principal dock-yards are governed by a commissioner, resident at the port; who superintends all the musters of the officers, artificers, and labourers, employed in the dock-yard and ordinary. He also controuls their payments therein; examines their accounts; contracts, and draw bills on the navy office to supply the deficiency of stores; and, finally, regulates whatever belongs to the dock-yard, maintaining due order in the respective offices.

These yards are generally supplied from the northern crowns with hemp, pitch, tar, rosin, canvas, oak plank, and several other species. With regard to the masts, particularly those of the largest size, they are usually imported from New England.

DOCTOR, a person who has passed all the degrees of a faculty, and is empowered to teach or practise the same: thus we say, doctor in divinity, doctor in physic, doctor of laws.

The establishment of the *doctorate*, such as now in use among us, is ordinarily attributed to Irnerius, who himself drew up the formulary. The first ceremony of this kind was performed at Bologna, in the person of Bulgarus, who began to profess the Roman law, and on that occasion was solemnly promoted to the *doctorat*, i. e. installed *juris utriusque doctor*. But the custom was soon transferred from the faculty of law to that of the theology; the first instance whereof was given in the university of Paris, where Peter Lombard and Gilbert de la Portree, the two chief divines of those days, were created doctors in theology, *sacrae theologiae doctores*.

Spelman takes the title of doctor not to have commenced till after the publication of Lombard's sentences, about the year 1140; and affirms, that such as explained that work to their scholars were the first that had the appellation of doctors. Others go much higher, and hold Bede to have been the first doctor at Cambridge, and John de Beverley at Oxford, which latter died in the year 721. But Spelman will not allow doctor to have been the name of any title or degree in England till the reign of King John, about the year 1207.

To pass doctor in divinity at Oxford, it is necessary the candidate have been four years bachelor of divinity. For doctor of laws, he must have been seven years in the university to commence bachelor of law; five years after which he may be admitted doctor of laws. Otherwise, in three years after taking the degree of master of arts, he may take the degree of bachelor in law; and in four years more, that of LL. D. which same method and time are likewise required to pass the degree of doctor in physic.

At Cambridge, to take the degree of doctor in divinity, it is required the candidate have been seven years bachelor of divinity. Though in several of the colleges the taking of the bachelor of divinity's degree is dispensed with, and they may go out *per saltum*. To commence doctor in laws, the candidate must have

been five years bachelor of law, or seven years master of arts. To pass doctor in physic, he must have been bachelor in physic five years, or seven years master of arts. A doctor of the civil law may exercise ecclesiastical jurisdiction, though a laymen, stat. 37 Hen. VII. cap. 17. sect. 4.

Doctor of the Law, a title of honour among the Jews. The investiture, if we may so say, of this order, was performed by putting a key and table book, in their hands; which is what some authors imagine our Saviour had in view, Luke xi. 52. when, speaking of the doctors of the law, he says, "Wo unto you, doctors of the law, for you have taken away the key of knowledge: you entered not in yourselves, and them that were entering you hindered."

Doctor of the Church, a title given to certain of the fathers whose doctrines and opinions have been the most generally followed and authorized. We usually reckon four doctors of the Greek church, and three of the Latin. The first are, St Athanasius, St Basil, St Gregory Nazianzen, and St Chrysostom. The latter are St Jerome, St Augustine, and Gregory the Great. In the Roman breviary there is a particular office for the doctors. It only differs from that of the confessors, by the anthem of the Magnificat, and the lessons.

DOCTOR, is also an appellation adjoined to several specific epithets, expressing the merit of some of the schoolmen: thus, Alexander Hales is called the irrefragable doctor; Thomas Aquinas, the angelic doctor; St Bonaventure, the seraphic doctor; John Duns Scotus, the subtle doctor; Raimond Lully, the illuminated doctor; Roger Bacon the admirable doctor, &c.

DOCTOR, (*Διδασκαλος*), in the Greek church, is a particular officer, appointed to interpret part of the scriptures. He who interprets the gospels, is called *doctor of the Gospels*; he who interprets St Paul's Epistles, *doctor of the Apostle*; he who interprets the Psalms, *doctor of the Psalter*.

DOCTORS Commons. See *COLLEGE of Civilians*.

DOCUMENT, in *Law*, some written monument produced in any thing asserted.

DODARTIA, a genus of plants belonging to the didynamia class; and in the natural method ranking under the 40th order, *Personatae*. See *BOTANY Index*.

DODD, DR WILLIAM, an unfortunate English divine, eldest son of the Rev. William Dodd, many years vicar of Bourne in Lincolnshire, was born May 29. 1729. He was sent, at the age of 16, to the university of Cambridge; and admitted in the year 1745 a sizer of Clare-Hall. In 1749-50 he took the degree of B. A. with great honour, being upon that occasion in the list of wranglers. Leaving the university, he imprudently married a Miss Mary Perkins in 1751, and soon became a celebrated and popular preacher. His first preferment was the lectureship of West-Ham. In 1754 he also was chosen lecturer of St Olave's, Hartstreet; and in 1757 took the degree of M. A. at Cambridge. On the foundation of the Magdalen Hospital in 1758, he was a strenuous supporter of that charity, and soon after became preacher at the chapel of it. By the patronage of Bishop Squire, he in 1763 obtained a prebend of Brecon, and by the interest of some city friends procured himself to be appointed one of

Doctor of
the Law
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Dodd.

Dodder,
Doddridge.

of the king's chaplains; soon after which, he had the education of the present earl of Chesterfield committed to his care. In 1766 he went to Cambridge and took the degree of LL. D. At this period, the estimation in which he was held by the world was sufficient to give him the expectations of preferment, and hopes of riches and honours; and these he might probably have acquired, had he possessed a common portion of prudence and discretion. But, impatient of his situation, and eager for advancement, he rashly fell upon means which in the end were the occasion of his ruin. On the living of St George, Hanover Square, becoming vacant, he wrote an anonymous letter to the chancellor's lady, offering 3000 guineas if by her assistance he was promoted to it. This being traced to him, complaint was immediately made to the king, and Dr Dodd was dismissed with disgrace from his office of chaplain. From this period he lived neglected, if not despised; and his extravagance still continuing, he became involved in difficulties, which tempted him to forge a bond from his late pupil Lord Chesterfield, Feb. 4. 1777, for 4200l. which he actually received: but being detected, he was tried at the Old Bailey, found guilty, and received sentence of death; and in spite of every application for mercy, was executed at Tyburn, June 27. 1777. Dr Dodd was a voluminous writer, and possessed considerable abilities, with little judgment and much vanity. An accurate list of his various writings is prefixed to his "Thoughts in Prison," edit. 1781.

DODDER. See CUSCUTA, BOTANY Index.

DODDRIDGE, PHILIP, D. D. an eminent Presbyterian minister, was the son of Daniel Doddridge an oilman in London, where he was born on the 26th of June 1702; and having completed the study of the classics in several schools, was in 1719 placed under the tuition of the reverend Mr John Jennings, who kept an academy at Kilworth in Leicestershire. He was first settled as a minister at Kilworth, where he preached to a small congregation in an obscure village: but, on Mr Jennings's death, succeeded to the care of his academy; and soon after was chosen minister of a large congregation of Dissenters at Northampton, to which he removed his academy, and where the number of his pupils increased. He instructed his pupils with the freedom and tenderness of a father; and never expected nor desired that they should blindly follow his sentiments, but encouraged them to judge for themselves. He checked any appearance of bigotry and uncharitableness, and endeavoured to cure them by showing what might be said in defence of those principles they disliked. He died at Lisbon, whither he went for the recovery of his health; and his remains were interred in the burying-ground belonging to the British factory there, and a handsome monument was erected to his memory in the meeting-house at Northampton, at the expense of the congregation, on which is an epitaph written by Gilbert West, Esq. He wrote, 1. Free Thoughts on the most probable means of reviving the Dissenting Interest. 2. The Life of Colonel James Gardiner. 3. Sermons on the Education of Children. 4. The Rise and Progress of Religion in the Soul. 5. The Family Expositor, in 6 vols 4to, &c. And since the author's death, a volume of his Hymns have been published, and his Theological Lectures. Several of

his works have been translated into Dutch, German, and French.

DODECAGON, in *Geometry*, a regular polygon consisting of twelve equal sides and angles.

DODECAHEDRON, in *Geometry*, one of the platonic bodies, or regular solids, contained under twelve equal and regular pentagons.

DODECANDRIA, (from *δωδεκα*, *twelve*, and *ανη*, *a man*); the name of the eleventh class in Linnæus's sexual system, consisting of plants with hermaphrodite flowers, that according to the title, have twelve stamina or male organs. This class however, is not limited with respect to the number of stamina. Many genera have sixteen, eighteen, and even nineteen stamina; the essential character seems to be, that, in the class in question, the stamina, however numerous, are inserted into the receptacle; whereas in the next class, icofandria, which is as little determined in point of number as the present, they are attached to the inside of the calyx or flower-cup.

The orders in this class, which are six, are founded upon the number of the styles, or female organs. A-farabacca, mangostan, storax, purple loofestribe, wild Syrian rue, and purslain, have only one style; agrimony and heliocarpus have two; burning thorny plant, and bastard rocket, three; *glinus*, five; *illicium*, eight; and house leek, twelve.

DODECAS, a genus of plants belonging to the dodecandria class. See BOTANY Index.

DODECATHEON, a genus of plants belonging to the pentandria class; and in the natural method ranking under the 21st order, *Preciæ*. See BOTANY Index.

DODO. See DIDUS, ORNITHOLOGY Index.

DODONA, a town of Thesprotia in Epirus, or (according to others) in Thessaly. There was in its neighbourhood a celebrated oracle of Jupiter. The town and temple of the god were first built by Deucalion, after the universal deluge. It was supposed to be the most ancient oracle of all Greece; and according to the traditions of the Egyptians mentioned by Herodotus, it was founded by a dove. Two black doves, as he relates, took their flight from the city of Thebes in Egypt; one of which flew to the temple of Jupiter Ammon, and the other to Dodona, where with a human voice they acquainted the inhabitants of the country that Jupiter had consecrated the ground, which in future would give oracles. The extensive grove which surrounded Jupiter's temple was endowed with the gift of prophecy; and oracles were frequently delivered by the sacred oaks and the doves which inhabited the place. This fabulous tradition of the oracular power of the doves is explained by Herodotus, who observes that some Phenicians carried away two priestesses from Egypt, one of which went to fix her residence at Dodona, where the oracle was established. It may farther be observed, that the fable might have been founded upon the double meaning of the word *πελιαι*; which signifies *doves* in most parts of Greece, while in the dialect of the Epirots it implies *old women*. In ancient times the oracles were delivered by the murmuring of a neighbouring fountain; but the custom was afterwards changed. Large kettles were suspended in the air near a brazen statue, which held a lash in its hand. When the wind blew strong, the

Dodecagon*
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Dodona.

Nichol's
Anecdotes of
Boyer.

statue

Dodona
||
Dodley.

statue was agitated and struck against one of the kettles, which communicated the motion to all the rest, and raised that clattering and discordant din, which continued for a while, and from which the artifice of the priests drew the predictions. Some suppose that the noise was occasioned by the shaking of the leaves and boughs of an old oak, which the superstition of the people frequently consulted, and from which they pretended to receive oracles. It may be observed, with more probability, that the oracles were delivered by the priests, who, by artfully concealing themselves behind the oaks, gave occasion to the superstitious multitude to believe that the trees were endowed with the power of prophecy. As the ship *Argo* was built with some of the oaks of the forest of Dodona, there were some beams which gave oracles to the Argonauts, and warned them against the approach of calamity. Within the forest of Dodona there was a stream and a fountain of cool water which had the power of lighting a torch as soon as it touched it. This fountain was totally dry at noon day, and was restored to its full course at midnight, from which time till the following noon it began to decrease, and at the usual hour was again deprived of its waters. The oracles of Dodona were generally delivered by women.

DODONÆA, a genus of plants belonging to the octandria class. See *BOTANY Index*.

DODONIAN, (*Dodoneus*,) in antiquity, an epithet given to Jupiter, because he was worshipped in a temple built in the forest of Dodona, where was the most famous, and (it is said) the most ancient, oracle of all Greece. See **DODONA**.

DODONIDES, the priestesses who gave oracles in the temple of Jupiter in Dodona. According to some traditions the temple was originally inhabited by seven daughters of Atlas, who nursed Bacchus. Their names were Ambrosia, Eudora, Pasithoe, Pytho, Plexaure, Coronis, Tythe or Tyche. In the latter ages the oracles were always delivered by three old women; which custom was first established when Jupiter enjoyed the company of Dione, whom he permitted to receive divine honour in his temple at Dodona. The Bœotians were the only people of Greece who received their oracles at Dodona from men, for reasons which Strabo, l. 9. fully explains.

DODRANS, in antiquity, three-fourths of the as. See the article *As*.

DODSLEY, ROBERT, an eminent bookseller, and ingenious writer, born at Mansfield in Nottinghamshire, in the year 1703. He was not indebted to education for his literary fame, being originally a livery servant; but his natural genius, and early passion for reading, soon elevated him to a superior station. He wrote an elegant little satirical farce called *The Toyshop*, which was acted with applause in 1735, and which recommended him to the patronage of Mr Pope. The following year he produced the *King and Miller of Mansfield*. The profits of these two farces enabled him to commence bookseller, and his own merit procured him eminence in that profession. He wrote some other dramatic pieces, and published a collection of his works in one vol. 8vo, under the modest title of *Trifles*; which was followed by *Public Virtue*, a poem in 4to. Mr Dodley was the author of the *Economy of Hu-*

man Life, a work which acquired considerable celebrity; but for this, it is supposed to have been indebted to the mistaken opinion which long prevailed of its being the production of Lord Chersterfield.

DODWELL, HENRY, a very learned controversial writer, born at Dublin, but of English extraction, in 1641. He wrote an incredible number of tracts: but his services were so little acknowledged, that Bishop Burnet and others accuse him of doing more hurt than good to the cause of Christianity, by his indiscreet love of paradoxes and novelties, and thus exposing himself to the scoffs of unbelievers. His pamphlet on the immortality of the soul gave rise to the well known controversy between Mr Collins and Dr Clark on that subject. He died in 1711.

DOESBURG, a town of the United Provinces, in the county of Zutphen and province of Guelderland. It is small, but well peopled, and very strong both by art and nature, having the river Yffel on one side, and a morass on the other, and is only to be approached by a narrow neck of land. E. Long. 5. 55. N. Lat. 52. 3.

DOG, in *Zoology*, an animal remarkable for its natural docility, fidelity, and affection for his master; which qualities mankind are careful to improve for their own advantage. These useful creatures guard our houses, gardens, and cattle, with spirit and vigilance. By their help we are enabled to take not only beasts, but birds; and to pursue game both over land and through the waters. In some northern countries, they serve to draw sledges, and are also employed to carry burdens. In several parts of Africa, China, and by the West Indian negroes, dogs are eaten, and accounted excellent food. Nay, we have the testimony of Mr Forster, that dogs flesh, in taste, exactly resembles mutton*. They were also used as food by the Romans, and long before them by the Greeks, as we learn from several treatises of Hippocrates. In the present times, their skins, dressed with the hair on, are used in muffs, made into a kind of buskins for persons in the gout, and for other purposes. Prepared in another way, they are used for ladies gloves, and the linings of masks, being thought to make the skin peculiarly white and smooth. The French import many of these skins from Scotland, under a small duty. Here, when tanned, they serve for upper leathers for neat pumps. Dogs skins dressed are exported under a small, and imported under a high duty. The French import from Denmark large quantities of dogs hair, both white and black. The last is esteemed the best, and is worked up in the black list of a particular kind of woollen cloth; but is not used, as many have supposed, in making of hats, being entirely unfit for this purpose.

With regard to the qualities of dogs, those bred in the island of Britain are justly reckoned superior to the dogs bred in any other country. The swiftness of the greyhound is amazing; as are also the steadiness and perseverance of other hounds and beagles; the boldness of terriers in unearthing foxes, &c.; the sagacity of pointers and setting dogs, who are taught a language by signs as intelligible to sportsmen as speech; and the invincible spirit of a bull-dog, which can be quelled only by death.—All the nations in Europe not only do justice to the superior qualities of the British dogs, but adopt our terms and names, and thankfully receive the creatures

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Dog. creatures as presents.—It is remarkable, however, that almost every kind of British dogs degenerates in foreign countries; nor is it possible to prevent this degeneracy by any art whatever.

Sportsman's Diet.

For the natural history of the dog, see *CANIS, MAMMALIA Index.*

Choosing of Dogs.—In order to choose a dog and bitch for good whelps, take care that the bitch come of a generous kind, be well proportioned, having large ribs and flanks; and likewise that the dog be of a good breed and young, for a young dog and an old bitch breed excellent whelps.

The best time for hounds nitches, or bratches, to be lined in, are the months of January, February, and March. The bitch should be used to a kennel, that she may like it after her whelping, and she ought to be kept warm. Let the whelps be weaned after two months old; and though it be some difficulty to choose a whelp under the dam that will prove the best of the litter, yet some approve that which is last, and account him to be the best. Others remove the whelps from the kennel, and lay them severally and apart one from the other; then they watch which of them the bitch first takes and carries into her kennel again, and that they suppose to be the best. Others again imagine that which weighs least when it sucks to be the best: this is certain, that the lighter whelp will prove the swifter. As soon as the bitch has littered, it is proper to choose them you intend to preserve, and drown the rest: keep the black, brown, or of one colour; for the spotted are not much to be esteemed, though of hounds the spotted are to be valued.

Hounds for chase are to be chosen by their colours. The white, with black ears, and a black spot at the setting on of the tail, are the most principal to compose a kennel of, and of good scent and condition. The black hound, or the black tanned, or the all liver-coloured or all white: the true talbots are the best of the stronger line; the grizzled, whether mixed or unmixed, so they be shag-haired, are the best verminers, and a couple of these are proper for a kennel.—In short, take these marks of a good hound: That his head be a middle proportion, rather long than round; his nostrils wide, his ears large, his back bowed; his fillet great, his haunches large, thighs well trussed, ham strait, tail big near the reins, the rest slender; the leg big, the sole of the foot dry, and in the form of that of a fox, with large claws.

Keeping Dogs in Health.—As pointers and spaniels, when good of their kinds and well broken, are very valuable to a sportsman, it is worth while to take some care to preserve them in health. This very much depends on their diet and lodging: frequent cleaning their kennels, and giving them fresh straw to lie on, is very necessary; or, in summer time, deal shavings, or sand, instead of straw, will check the breeding of fleas. If you rub your dog with chalk, and brush and comb him once or twice a-week, he will thrive much the better; the chalk will clear his skin from all greasiness, and he will be the less liable to be mangy. A dog is of a very hot nature: he should therefore never be without clean water by him, that he may drink when he is thirsty. In regard to their food, carrion is by no means proper for them; it must hurt their sense of smelling, on which the excellence

VOL. VII. Part I.

of these dogs greatly depends. Barley meal, the dross of wheat flour, or both mixed together, with broth or skimmed milk, is very proper food. For change, a small quantity of greaves from which the tallow is pressed by the chandlers, mixed with flour, or sheep's feet well baked or boiled, are a very good diet: and when you indulge them with flesh, it should always be boiled. In the season of hunting your dogs, it is proper to feed them in the evening before, and give them nothing in the morning you intend to take them out except a little milk. If you stop for your own refreshment in the day, you should also refresh your dogs with a little bread and milk. It has been already observed that dogs are of a hot constitution; the greatest relief to them in the summer is twitch-grass, or dog-grass, which is the same thing. You should therefore plant some of it in a place where you can turn them into every morning: they will feed freely on it to be cured of the sickness they are subject to, and cured of any extraordinary heat of blood: but unless the grass be of this sort, it will have no effect.

Dog.
Sportsman's Diet.

Diseases of Dogs.—1. *Bites and Stings.* If dogs are bitten by any venomous creatures, as snakes, adders, &c. squeeze out the blood, and wash the place with salt and urine; then lay a plaster to it made of calamint, pounded in a mortar, with turpentine and yellow wax, till it come to a salve. If you give your dog some of the juice of calamint to drink in milk, it will be good; or an ounce of treacle dissolved in some sweet wine.

2. *Mange.*—Dogs are subject to the mange from being fed too high, and allowed no exercise or an opportunity of refreshing themselves with dog-grass; or by being starved at home, which will cause them to eat the vilest stuff abroad, such as carrion, or even human excrement: or by want of water, and sometimes by not being kept clean in their kennel, or by foundering and melting in their grease. Either of these will heat the blood to a great degree, which will have a tendency to make them mangy. The cure may be effected by giving stone brimstone powdered fine, either in milk or mixed up with butter, and rubbing them well every day for a week with an ointment made of some of the brimstone and pork lard, to which add a small quantity of oil of turpentine. Or, boil four ounces of quicksilver in two quarts of water to half the quantity; bathe them every day with this water, and let them have some of it to lick till the cure is perfected. Or, a small quantity of trooper's ointment rubbed on the parts on its first appearance will cure it. It will also free lousy puppies from their lice. Or, take two ounces of euphorbium; flour of sulphur, Flanders oil of bays, and soft soap, each four ounces. Anoint and rub your dog with it every other day; give him warm milk, and no water. The cure will be performed in about a week. The following receipt is also said to be efficacious. Take two handfuls of wild cresses, and as much elecampane, and also of the leaves and roots of roerb and sorrel, and two pounds of the roots of fodels: boil all these well together in lye and vinegar; strain the decoction, and put into it two pounds of gray soap, and when it is melted, rub the dog with it four or five days successively, and it will cure him.

3. *Poison.*—If you suspect your dog to be poisoned

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with nux vomica (the poison usually employed by the warreners, which causes convulsive fits and soon kills), the most effectual remedy, if immediately applied, is to give him a good deal of common salt; to administer which, you may open his mouth, and put a stick across to prevent the shutting it, whilst you cram his throat full of salt, at the same time holding his mouth upwards; and it will dissolve so that a sufficient quantity will be swallowed to purge and vomit him. When his stomach is sufficiently cleared by a free passage obtained by stool, give him some warm broth frequently, to prevent his expiring from faintness; and he will recover.

4. *Worms*.—Dogs are very frequently troubled with worms; but more particularly whilst they are young. Any thing bitter is so nauseous to these worms, that they are very often voided by taking two or three purges of aloes; or (which is the same thing) Scots pills, four or five being a dose for a large dog: this is to be repeated two or three times in a week. If this do not succeed, you may give him an ounce of powder of tin mixed up with butter, in three doses; which seldom fails to cure. Or, of the herb savin, dried and rubbed to powder, give about as much as will lie on a shilling for a dose; which will entirely destroy worms and their seed.

5. *Sore Feet*.—A pointer ought not to be hunted oftener than two or three days in a week; and unless you take care of his feet, and give him good lodging as well as proper food, he will not be able to perform that through the season. You should therefore, after a hard day's hunting, wash his feet with warm water and salt; and when dry, wash them with warm broth, or beer and butter, which will heal their soreness, and prevent a settled stiffness from fixing.

6. *Strains, Blows, or small Wounds*.—If your dog has received any little wounds by forcing through hedges, or gets any lameness from a blow or strain; bathe the wound or grieved part with salt and cold vinegar (for warming it only evaporates the fine spirit); and when dry, if a wound, you may pour in it a little friar's balsam, which will perform the cure sooner than any method hitherto experienced.

7. *Coughs and Colds*.—Dogs are very subject to a cough, with an extraordinary choking, which is thought to arise generally from a cold or some inward disorder; and probably it is often occasioned by their eating of fish bones. To guard against it, order your servants to throw all such fish bones where the dogs cannot get at them. But if the disorder be from a cold, let bleeding be repeated in small quantities, if necessary; but if it be what is called the *distemper* in dogs, and they appear to be very low in spirits, the bleeding is better omitted. Let meat broth, or milk broth warmed, be the principal part of his diet, using at the same time the following medicine. Take flour of sulphur, cold drawn linseed oil, and saltpetre, of each an ounce; divide it into four doses, giving him one dose every other day, and let him have plenty of clean straw to lie on; or one spoonful of honey daily.

Dog-Madness.—Of this there are no less than seven sorts common among dogs. The chief causes are, high feeding, want of exercise, fulness of blood, and costiveness. As for the two first, you must observe when you hunt them, that they should be better fed than

when they rest; and let them be neither too fat nor too lean; but, of the two, rather fat than lean; by which means they will not only be preserved from madness but also from the mange and scab; which diseases they will be subject to for want of air, water, or exercise: but if you have but the knowledge to keep them in an even temper, they may live long, and continue sound. As for water, they should be left to their own pleasure; but for exercise and diet, it must be ordered according to discretion, observing a medium. Give them once a-week, especially in the heat of the year, five or six spoonfuls of salad oil, which will cleanse them: at other times, the quantity of a hazel nut of mithridate is an excellent thing to prevent diseases. It is also very good to bleed them under the tongue, and behind the ears.

The symptoms of madness are many and easily discerned. When any dog separates himself contrary to his former use, becomes melancholy or droops his head, forbears eating, and as he runs snatches at every thing; if he often looks upwards, and his stern at his setting on be a little erect, and the rest hanging down; if his eyes be red, his breath strong, his voice hoarse, and he drivels and foams at the mouth; you may be assured he has this distemper.

The seven sorts of madness are as follows; of which the two first are incurable. 1. The hot burning madness. 2. The running madness. The animals labouring under these are peculiarly dangerous; for all things they bite and draw blood from will have the same distemper; and they generally seize on all they meet with, but chiefly on dogs. Their pain is so great it soon kills them.—The five curable madneses are,

3. *Sleeping Madness*, so called from the dog's great drowsiness, and almost continual sleeping. This is caused by the little worms that breed in the mouth of the stomach, from corrupt humours, vapours, and fumes which ascend to the head; for cure of which, take six ounces of the juice of wormwood, two ounces of the powder of hartshorn burnt, and two drachms of agaric; mix all these together in a little white wine, and give it the dog to drink in a drenching horn.

4. *Dumb Madness*, lies also in the blood, and causes the dog not to feed, but to hold his mouth always wide open, frequently putting his feet to his mouth, as if he had a bone in his throat; to cure this, take the juice of black hellebore, the juice of *spatula putrida*, and of rue, of each four ounces; strain them well, and put thereto two drachms of unprepared scammony, and being mixed well together, put it down the dog's throat with a drenching horn, keeping his head up for some time, left he cast it out again; then bleed him in the mouth, by cutting two or three veins in his gums.

It is said, that about eight drachms of the juice of an herb called *hartshorn*, or *dog's tooth*, being given to the dog, cures all sorts of madness.

5. *Lank Madness*, is so called by reason of the dog's leanness and pining away. For cure give them a purge as before directed, and also bleed them; but some say there is no cure for it.

6. *Rheumatic or slavering madness*, occasions the dog's head to swell, his eyes to look yellow, and he will be always slavering and drivelling at the mouth. To cure which, take four ounces of the powder of the roots of polipody of the oak, six ounces of the juice of fennel roots,

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roots, with the like quantity of the roots of mistletoe, and four ounces of the juice of ivy; boil all these together in white wine, and give it to the dog as hot as he can take it, in a drenching horn.

7. *Falling madness*, is so termed because it lies in the dog's head, and makes him reel as he goes, and to fall down. For the cure, take four ounces of the juice of briony, and the same quantity of the juice of peony, with four drachms of stavesacre pulverized; mix these together, and give it the dog in a drenching horn; also let him bleed in the ears, and in the two veins that come down his shoulders; and indeed bleeding is necessary for all sorts of madness in dogs.

When a dog happens to be bit by a mad one, there is nothing better than their licking the place with their own tongues, if they can reach it; if not, then let it be washed with butter and vinegar, made lukewarm, and let it afterwards be anointed with Venice turpentine; but, above all, take the juice of the stalks of strong tobacco boiled in water, and bathe the place therewith; also wash him in sea water, or water artificially made salt; give him likewise a little mithridate inwardly in two or three spoonfuls of sack; and so keep him apart; and if you find him after some time still to droop, the best way is to hang him.

Some have asserted their having cured several creatures that have been bit by mad dogs, with only giving them the middle yellow bark of buckthorn; which must be boiled in ale for a horse or cow, and in milk for a dog; but that it must be boiled till it is as bitter as you can take it.

As to the preventive of worming dogs, see WORMING.

Dog-Days. See CANICULA.

Dog-Fish. See SQUALUS, ICHTHYOLOGY Index.

Dogs-Bane. See APOCYNUM, BOTANY Index.

Dog-Wood Tree. See PISCIDIA, BOTANY Index.

DOGE, the chief magistrate in the republics of Venice and Genoa.

The word properly signifies *duke*, being formed from the Latin *dux*; as *dogate*, and *dogado*, from *duca-tus*, "duchy."

The dogate, or office and dignity of doge, is elective; at Venice the doge is elected for life; at Genoa, only for two years. He is addressed under the title of *Serenity*, which among the Venetians is superior to that of highness.

The doge is the chief of the council, and the mouth of the republic; yet the Venetians do not go into mourning at his death, as not being their sovereign, but only their first minister. In effect, the doge of Venice is no more than the phantom or shadow of the majesty of a prince; all the authority being reserved to the republic. He only lends his name to the senate; the power is diffused throughout the whole body, though the answers be all made in the name of the doge. If he gives any answers on his own account, they must be very cautiously expressed, and in general terms, otherwise he is sure to meet with a reprimand. So that it is absolutely necessary he be of an easy and pliable disposition.

Anciently the doges were sovereigns; but things are much altered; and at present, all the prerogatives reserved to the quality of doge, are these which fol-

low: He gives audience to ambassadors; but does not give them any answer from himself, in matters of any importance; only he is allowed to answer according to his own pleasure, to the compliments they make to the signory; such answers being of no consequence. The doge, as being first magistrate, is head of all the councils; and the credentials which the senate furnishes its ministers in foreign courts, are written in his name; and yet he does not sign them; but a secretary of state signs them, and seals them with the arms of the republic. The ambassadors direct their despatches to the doge; and yet he may not open them but in presence of the counsellors. The money is struck in the doge's name, but not with his stamp or arms. All the magistrates rise, and salute the doge when he comes into council; and the doge rises to none but foreign ambassadors.

The doge nominates to all the benefices in the church of St Mark; he is protector of the monastery delle Virgine; and bestows certain petty offices of ushers of the household, called *Commanders of the Palace*. His family is not under the jurisdiction of the master of the ceremonies; and his children may have staff officers, and gondoliers in livery.

His grandeur, at the same time, is tempered with a variety of circumstances, which render it burdensome. He may not go out of Venice without leave of the council; and if he does go out, he is liable to receive affronts, without being entitled to demand satisfaction; and, if any disorder should happen where he was, it belongs not to him, but to the podesta, as being invested with the public authority, to compose it.

The children and brothers of the doge are excluded from all the chief offices of state. They may not receive any benefice from the court of Rome; but are allowed to accept of the cardinalate, as being no benefice, nor including any jurisdiction. The doge may not divest himself of his dignity, for his ease; and after his death, his conduct is examined by three inquisitors, and five correctors, who sift it with great severity.

DOGGER, a Dutch fishing vessel navigated in the German ocean. It is generally employed in the herring fishery; being equipped with two masts, viz. a main-mast and a mizen-mast, and somewhat resembling a ketch. See the Plates at the article SHIP.

DOGGERS, in the English alum works, a name given by the workmen to a sort of stone found in the same mines with the true alum rock, and containing some alum, though not near so much as the right kind. The county of York, which abounds greatly with the true alum rock, affords also a very considerable quantity of these doggers; and in some places they approach so much to the nature of the true rock, that they are wrought to advantage.

DOGMA, a principal maxim, tenet, or settled opinion, particularly with regard to matters of faith and philosophy.

DOGMATICAL, something belonging to a doctrine or opinion. A dogmatical philosopher is one who asserts things positively; in opposition to a sceptic, who doubts of every thing.

DOGMATISTS, a sect of ancient physicians, of

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which Hippocrates was the first author. They are also called *logici*, "logicians," from their using the rules of logic in subjects of their profession. They laid down definitions and divisions; reducing diseases to certain genera, and those genera to species, and furnishing remedies for them all; supposing principles, drawing conclusions, and applying those principles and conclusions to particular diseases under consideration; in which sense, the dogmatists stand contradistinguished from empirics and methodists. They reject all medicinal virtues, that they think not reducible to manifest qualities; but Galen hath long ago observed of such men, that they must either deny plain matter of fact, or assign but very poor reasons and causes of many effects they pretend to explain.

DOLCE, CARLO, or CARLINO, a celebrated history and portrait painter, was born at Florence in 1616, and was the disciple of Vignali. This great master was particularly fond of representing pious subjects, though he sometimes painted portraits; and his works are easily distinguished by the peculiar delicacy with which he perfected all his compositions, by a pleasing tint of colour, and by a judicious management of the chiaro scuro. His performance was remarkably slow; and it is reported that his brain was fatally affected by seeing Luca Jordana despatch more business in four or five hours than he could have done in as many months. He died in 1686.

DOLE, in the Saxon and British tongue, signifies a part or portion, most commonly of a meadow, where several persons have shares. It also still signifies a distribution or dealing of alms, or a liberal gift made by a great man to the people.

DOLE, in *Scots Law*, signifies a malevolent intention. It is essential in every crime, that it be committed intentionally, or by an act of the will: hence the rule, *Crimen dolo contrahitur*.

DOLICHOS, a genus of plants belonging to the diadelphia class, and in the natural method ranking under the 32d order *Papilionaceæ*. See *BOTANY Index*.

DOLLAR, or DALLER, a silver coin nearly of the value of the Spanish piece of eight, or French crown.

Dollars are coined in different parts of Germany and Holland; and have their diminutions, as semi-dollars, quarter-dollars, &c. See *MONET Table*.

They are not all of the same fineness or weight. The Dutch dollars are the most frequent. In the Levant they are called *astaini*, from the impression of a lion thereon.

DOLPHIN. See DELPHINUS, *CETOLOGY Index*.

DOLPHIN of the Mast, a peculiar kind of wreath, formed of plaited cordage, to be fastened occasionally round the masts, as a support to the puddening, whose use is to sustain the weight of the fore and main yards in case the rigging or chains by which those yards are suspended should be shot away in the time of battle; a circumstance which might render their sails useless at a season when their assistance is extremely necessary. See the article PUDDENING.

DOM, or DON, a title of honour invented and chiefly used by the Spaniards, signifying *sir* or *lord*.

This title, it seems, was first given to Pelayo, in the beginning of the eighth century. In Portugal no per-

son can assume the title of *don* without the permission of the king, since it is looked upon as a mark of honour and nobility. In France it is sometimes used among the religious. It is an abridgement of *domnus*, from *dominus*.

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Domesday.

Dom and Som, in old charters, signifies full property and jurisdiction.

DOMAIN, the inheritance, estate, or possession of any one. See DEMESNE.

DOMAT, JOHN, a celebrated French lawyer, born in 1625, who observing the confused state of the laws, digested them in 4 vols 4to, under the title of *The Civil Laws in their natural order*: for which undertaking, Louis XIV. settled on him a pension of 2000 livres. Domat was intimate with the famous Pascal, who left him his private papers at his death: he himself died in 1696.

DOME, in *Architecture*, a spherical roof, or a roof of a spherical form, raised over the middle of a building, as a church, hall, pavilion, vestibule, staircase, &c. by way of crowning.

DOME, in *Chemistry*, the upper part of furnaces, particularly portable ones. It has the figure of a hollow hemisphere or small dome. Its use is to form a space in the upper part of the furnace, the air of which is continually expelled by the fire: hence the current of air is considerably increased, which is obliged to enter by the ash-hole, and to pass through the fire, to supply the place of the air driven from the dome. The form of this piece renders it proper to reflect or reverberate a part of the flame upon the matters which are in the furnace, which has occasioned this kind of furnace to be called a *reverberating* one. See FURNACE.

DOME, or *Doom*, signifies judgment, sentence, or decree. The homagers oath in the black book of Hereford ends thus: "So help me God at his holy dome, and by my trowthe."

DOMENICHINO, a famous Italian painter, born of a good family at Bologna in 1581. He was at first a disciple of Calvart the Fleming, but soon quitted his school for that of the Caraccis. He always applied himself to his work with much study and thoughtfulness; and never offered to touch his pencil but when he found a proper kind of enthusiasm upon him. His great skill in architecture also procured him the appointment of chief architect of the apostolical palace from Pope Gregory XV.; nor was he without a theoretical knowledge in music. He died in 1641.

DOMESDAY, or DOOMS DAY BOOK, a most ancient record, made in the time of William I. furnished the *Conqueror*, and containing a survey of all the lands of England. It consists of two volumes, a greater and a less. The first is a large folio, written on 382 double pages of vellum, in a small but plain character; each page having a double column. Some of the capital letters and principal passages are touched with red ink; and some have strokes of red ink run across them, as if scratched out. This volume contains the description of 31 counties. The other volume is in quarto, written upon 450 double pages of vellum, but in a single column, and in a large but very fair character. It contains the counties of Essex, Norfolk, Suffolk, part of the county of Rutland, included in that of Northampton.

Domesday-ton, and part of Lancashire in the counties of York and Chester.

This work, according to the red book in the exchequer, was begun by order of William the Conqueror, with the advice of his parliament, in the year of our Lord 1085, and completed in the year 1086. The reason given for taking this survey, as assigned by several ancient records and historians, was, that every man should be satisfied with his own right, and not usurp with impunity what belonged to another. But, besides this, it is said by others, that now all those who possessed landed estates became vassals to the king, and paid him so much money by way of fee or homage in proportion to the lands they held. This appears very probable, as there was at that time extant a general survey of the whole kingdom, made by order of King Alfred.

For the execution of the survey recorded in domesday book, commissioners were sent into every county and shire; and juries summoned in each hundred, out of all orders of freemen, from barons down to the lowest farmers. These commissioners were to be informed by the inhabitants, upon oath, of the name of each manor, and that of its owner; also by whom it was held in the time of Edward the Confessor; the number of hides; the quantity of wood, of pasture, and of meadow land; how many ploughs were in the demesne, and how many in the tenanted part of it; how many mills; how many fish-ponds or fisheries belonged to it; with the value of the whole together in the time of King Edward, as well as when granted by King William, and at the time of this survey; also whether it was capable of improvement or of being advanced in its value; they were likewise directed to return the tenants of every degree, the quantity of lands then and formerly held by each of them, what was the number of villains or slaves, and also the number and kinds of their cattle and live stock. These inquiries being first methodized in the county, were afterwards sent up to the king's exchequer.

This survey, at the time it was made, gave great offence to the people; and occasioned a jealousy that it was intended for some new imposition. But notwithstanding all the precaution taken by the conqueror to have this survey faithfully and impartially executed, it appears from indisputable authority, that a false return was given in by some of the commissioners: and that, as it is said, out of a pious motive. This was particularly the case with the abbey of Croyland in Lincolnshire, the possessions of which were greatly underrated both with regard to quantity and value. Perhaps more of these pious frauds were discovered, as it is said Ralph Flambard, minister to William Rufus, proposed the making a fresh and more vigorous inquiry; but this was never executed.

Notwithstanding this proof of its falsehood in some instances, which must throw a suspicion on all others, the authority of domesday book was never permitted to be called in question; and always, when it hath been necessary to distinguish whether lands were held in ancient demesne, or in any other manner, recourse was had to domesday book, and to that only, to determine the doubt. From this definitive authority, from which, as from the sentence pronounced at *domesday*, or the

day of judgment, there could be no appeal, the name of the book is said to have been derived. But Stowe assigns another reason for this appellation; namely, that domesday book is a corruption of *domus Dei book*; a title given it because heretofore deposited in the king's treasury, in a place of the church of Westminster or Winchester, called *domus Dei*. From the great care formerly taken for the preservation of this survey, we may learn the estimation in which its importance was held. The dialogue de Scaccariis says, "*Liber ille (domesday) sigilli regis comes est individuus in thesauro.*" Until lately it has been kept under three different locks and keys; one in custody of the treasurer, and the others in that of the two chamberlains of the exchequer. It is now deposited in the chapterhouse at Westminster, where it may be consulted on paying to the proper officers a fee of 6s. 8d. for a search, and fourpence per line for a transcript.

Besides the two volumes above-mentioned, there is also a third made by order of the same king; and which differs from the others in form more than matter. There is also a fourth called *domesday*, which is kept in the exchequer; which, though a very large volume, is only an abridgement of the others. In the remembrancers office in the exchequer is kept a fifth book, likewise called *domesday*, which is the same with the fourth book already mentioned. King Alfred had a roll which he called *domesday*; and the domesday book made by William the Conqueror referred to the time of Edward the Confessor, as that of King Alfred did to the time of Ethelred. The fourth book of domesday having many pictures and gilt letters in the beginning relating to the time of King Edward the Confessor, this had led some into a false opinion that domesday book was composed in the reign of King Edward.

DOMESTIC, any man who acts under another, serving to compose his family; in which he lives, or is supposed to live, as a chaplain, secretary, &c. Sometimes domestic is applied to the wife and children; but very seldom to servants, such as footmen, lacquies, porters, &c.

DOMESTIC, *adj.* is sometimes opposed to foreign. Thus "*domestic occurrences*" signify those events which happen in our own country, in contradistinction to those of which we receive intelligence from abroad.

In its more usual acceptation, the term implies something peculiar to *home* or *household*. Thus we speak of *domestic* happiness or pleasures: meaning the pleasures enjoyed in the bosom of one's family; in opposition to those found in the bustle of public life, or delusively sought in the haunts of dissipation.

The solace of domestic enjoyments has been coveted by the wisest and greatest of men. Senators and heroes have shut out the acclamations of an applauding world, to enjoy the prattling of their little ones, and to partake the endearments of family conversation. They knew that even their best friends, in the common intercourse of life, were in some degree actuated by interested motives in displaying their affection; that many of their followers applauded them in hopes of reward; and that the giddy multitude, however zealous, were not always judicious in their approbation. But the attentions paid them at their fire side, the smiles which exhilarated

Domesday,
Domestic.

Domestic. exhilarated their own table, were the genuine result of undissembled love.

*Knorr's
Essays,
No 46.*

To pursue the observations of an elegant essayist: "The nursery has often alleviated the fatigues of the bar and the senate-house. Nothing contributes more to raise the gently pleasing emotions, than the view of infant innocence, enjoying the raptures of a game at play. All the sentiments of uncontroled nature display themselves to the view, and furnish matter for agreeable reflection to the mind of the philosophical observer. To partake with children in their little pleasures, is by no means unmanly. It is one of the purest sources of mirth. It has an influence in amending the heart, which necessarily takes a tincture from the company that surrounds us. Innocence as well as guilt is communicated and increased by the contagion of example. And the great Author of evangelical philosophy has taught us to emulate the simplicity of the infantine age. He seems indeed himself to have been delighted with young children, and found in them, what he in vain sought among those who judged themselves their superiors, unpolluted purity of heart.

"Among the great variety of pictures which the vivid imagination of Homer has displayed throughout the Iliad, there is not one more pleasing than the family piece, which represents the parting interview between Hector and Andromache. It deeply interests the heart, while it delights the imagination. The hero ceases to be terrible, that he may become amiable. We admire him while he stands completely armed in the field of battle; but we love him more while he is taking off his helmet, that he may not frighten his little boy with its nodding plumes. We are refreshed with the tender scene of domestic love, while all around breathes rage and discord. We are pleased to see the arm, which is shortly to deal death and destruction among an host of foes, employed in caressing an infant son with the embraces of paternal love. A professed critic would attribute the pleasing effect entirely to contrast; but the heart has declared, previously to the inquiries of criticism, that it is chiefly derived from the satisfaction which we naturally take in beholding great characters engaged in tender and amiable employments.

"But after all that is said of the purity and the solidity of domestic pleasures, they unfortunately appear to a great part of mankind, insipid, unmanly, and capable of satisfying none but the weak, the spiritless, the inexperienced, and the effeminate. The pretenders to wit and modern philosophy are often found to renounce the received opinions of prudential conduct; and, while they affect a superior liberality, to regulate their lives by the most selfish principles. Whatever appears to have little tendency to promote personal pleasure and advantage, they leave to be performed by those simple individuals, who are dull enough, as they say, to pursue the journey of life by the straight road of common sense. It is true, they will allow, that the world must be replenished by a perpetual succession; and it is no less true, than an offspring, once introduced into the world, requires all the care of painful attention. But let the task be reserved for meaner spirits. If the passions can be gratified without the painful consequences of supporting a family, they eagerly seize

the indulgence. But the toil of education they leave to those whom they deem fools enough to take a pleasure in it. There will always be a sufficient number, say they, whose folly will lead them, for the sake of a silly passion called virtuous love, to engage in a life of perpetual anxiety. The fool's paradise, they add with derision, will never be deserted.

"Presumptuous as are all such pretenders to newly invented systems of life and conduct, it is not to be supposed they will think themselves superior to Cicero. Yet Cicero, with all his liberality of mind, felt the tenderness of conjugal and paternal attachment, and acknowledged that, at one time, he received no satisfaction in any company but that of his wife, his little daughter, and, to use his own epithet, his *MONIBUS* young Cicero. The great Sir Thomas More, whom nobody will suspect of narrowness of mind, who by a very singular treatise evinced that he was capable of thinking and of choosing for himself, has left it on record that he devoted a great share of his time, from the united motives of duty and delight, to the amusement of his children.

"It will be objected by those who pretend to have formed their ideas of life from actual observation, that domestic happiness, however pleasing in description, like many a poetic dream, is but an alluring picture, designed by a good heart, and painted in glowing colours by a lively fancy. The constant company, they urge, even of those we love, occasions an insipidity. Insipidity grows into disgust. Disgust, long continued, sours the temper. Peevishness is the natural consequence. The domestic circle becomes the scene of dispute. Mutual antipathy is ingenious in devising mutual torment. Sullen silence or malignant remarks fill up every hour, till the arrival of a stranger causes a temporary restraint, and excites that good humour which ought to be displayed among those whom the bonds of affection and blood have already united.

"Experience, indeed, proves that these remarks are sometimes verified. But that there is much domestic misery is no argument that there is no domestic happiness, or that the evil may not be removed. Natural stupidity, natural ill temper, acquired ill habits, want of education, illiberal manners, and a neglect of the common rules of discretion, will render every species of intercourse disagreeable. When those are united by connubial ties who were separated by natural and inherent diversity, no wonder if that degree of happiness which can only result from a proper union, is unknown. In the forced alliance, which the poet of *Venusium* mentions, of the serpent with the dove, of the tyger with the lamb, there can be no love. When we expatiate on the happiness of the domestic group, we presuppose that all who compose it are originally assimilated by affection, and are still kept in union by discreet friendship. Where this is not the case, the centre must fall on the discordant disposition of the parties, and not on the essential nature of family intercourse.

"To form, under the direction of prudence, and by the impulse of virtuous love, an early conjugal attachment, is one of the best securities of virtue, as well as the most probable means of happiness. The duties, which are powerfully called forth by the relations of husband

Domicile husband and father, are of that tender kind which inspires goodness and humanity. He who beholds a woman whom he loves, and a helpless infant, looking up to him for support, will not easily be induced to indulge in unbecoming extravagance, or devote himself to indolence. He who has a rising family to introduce into a vicious world, will be cautious of setting a bad example, the contagion of which, when it proceeds from parental authority, must be irresistibly malignant. Thus many who, in their individual and unconnected state, would probably have spent a life not only useless to others, but profligate and careless in itself, have become valuable members of the community, and have arrived at a degree of moral improvement, to which they would not otherwise have attained.

“The contempt in which domestic pleasures have in modern times been held, is a mark of profligacy. It is also a proof of a prevailing ignorance of real enjoyment. It argues a defect in taste and judgment as well as in morals. For the general voice of the experienced has in all ages declared, that the truest happiness is to be found at home.”

DOMICILE, in *Scots Law*, is the dwelling place where a person lives with an intention to remain.

DOMIFYING, in *Astrology*, the dividing or distributing the heavens into 12 houses, in order to erect a theme, or horoscope, by means of six great circles, called *circles of position*.

There are various ways of domifying: that of Regiomontanus, which is the most common, makes the circles of position pass through the intersections of the meridian and the horizon: others make them pass through the poles of the zodiac.

DOMINANT (from the Latin word *dominari* “to rule or govern”), among musicians, is used either as an adjective or substantive; but these different acceptations are far from being indiscriminate. In both senses it is explained by Rousseau as follows:

The *dominant* or sensible chord is that which is practised upon the dominant of the tone, and which introduces a perfect cadence. Every perfect major chord becomes a *dominant* chord, as soon as the seventh minor is added to it.

DOMINANT (*subst.*). Of the three notes essential to the tone, it is that which is a fifth from the tonic.—The tonic and the *dominant* fix the tone: in it they are each of them the fundamental sound of a particular chord; whereas the *mediant*, which constitutes the mode, has no chord peculiar to itself, and only makes a part of the chord of the tonic.

Mr Rameau gives the name of *dominant* in general to every note which carries a chord of the seventh, and distinguishes that which carries the sensible chord by the name of a *tonic dominant*; but, on account of the length of the word, this addition to the name has not been adopted by artists: they continue simply to call that note a *dominant* which is a fifth from the tonic; and they do not call the other notes which carry a chord of the seventh *dominant*, but *fundamentals*; which is sufficient to render their meaning plain, and prevents confusion.

A *dominant*, in that species of church music which is called *plain-chant*, is that note which is most frequently repeated or beaten, in whatever degree it may be from

the tonic. In this species of music there are *dominants* and *tonicks*, but no *mediant*.

DOMINATION, or **DOMINION**, in *Theology*, the fourth order of angels or blessed spirits in the hierarchy, reckoning from the seraphim. See **ANGEL**.

DOMINGO, or **ST DOMINGO**, the capital of the island of Hispaniola in the West Indies, is seated in that part belonging to the Spaniards on the south side of the island, and has a commodious harbour. The town is built in the Spanish manner, with a great square in the middle of it; about which are the cathedral and other public buildings. From this square run the principal streets, in a direct line, they being crossed by others at right angles, so that the form of the town is almost square. The country on the north and east side is pleasant and fruitful; and there is a large navigable river on the west, with the ocean on the south. It is the see of an archbishop, an ancient royal audience, and the seat of the governor. It has several fine churches and monasteries; and is so well fortified, that a fleet and army sent by Oliver Cromwell in 1654 could not take it. The inhabitants are Spaniards, Negroes, Mulattoes, Mestices, and Albatraces; of whom about a sixth part may be Spaniards. It had formerly about 2000 houses, but it is much declined of late years.—The river on which it is seated is called *Ozama*.—W. Lon. 69. 30. N. Lat. 18. 25.

DOMINIC DE GUSMAN, founder of the Dominican order of monks, was born at Calaroga in Old Castile, 1170. He preached with great fury against the Albigenses, when Pope Innocent III. made a crusade against that unhappy people; and was inquisitor in Languedoc, where he founded his order, and got it confirmed by the Lateran council in 1215. He died at Bologna in 1221, and was afterwards canonized. The Dominican order has produced many illustrious men. See **DOMINICANS**.

DOMINICA, one of the Caribbee islands, in the West Indies, about 39 miles long and 13 broad, situated between 61° and 62° W. Long. and between 15° and 16° of N. Lat. This island formerly belonged to the French, but was ceded to Britain by the treaty in 1763. It is very advantageous to the latter, as being situated between the French islands of Guadaloupe and Martinico, so that it is equally alarming to both; and its safe and commodious roads enable the British privateers to intercept, without risk, the navigation of France in her colonies, whenever a war happens between the two nations.

This island was reduced, in the year 1778, by the French, under the marquis de Bouille, governor of Martinico. At that time the island, though very well fortified, had been unaccountably neglected by the British government, in such a manner as to be almost entirely destitute of a garrison. The French commander therefore, who made a descent with 2000 men, found only 100 regular forces and a few companies of militia to oppose him. All resistance therefore being vain, the only thing the garrison could do was to procure as favourable terms of capitulation as possible. These were granted with such readiness as did great honour to the character of this officer; the inhabitants experiencing no kind of change except that of transferring their obedience from Britain to France, being left unmolested in the enjoyment of all their rights both

Domicile
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Dominant.

Domina-
tion
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Dominica.

Dominical,
Domi-
cans.

both civil and religious. The capitulation was strictly observed by the marquis; no plunder or irregularity being allowed, and a pecuniary gratification being distributed among the soldiers and volunteers who accompanied him in the expedition. An hundred and sixty-four pieces of excellent cannon, and twenty-four brass mortars, besides a large quantity of military stores, were found in the place; insomuch that the French themselves expressed their surprise at finding so few hands to make use of them. The marquis, however, took care to supply this defect, by leaving a garri- son of 1500 of the best men he had with him. It was restored to Britain at the conclusion of the peace in 1783.

La DOMINICA, one of the *MARQUESAS* islands in the South sea.

DOMINICAL LETTER, popularly called *Sunday Letter*, one of the seven letters A B C D E F G, used in almanacks, ephemerides, &c. to denote the Sundays throughout the year. See *CHRONOLOGY*, N^o 32. The word is formed from *dominica* or *dominicus dies*, "Lord's day, Sunday."

The dominical letters were introduced in the calendar by the primitive Christians in lieu of the *NUNDINAL* letters in the Roman calendar.

DOMINICAL, in church history. The council of Auxerre, held in 578, decrees, that women communicate with their dominical. Some authors contend, that this dominical was a linen cloth, wherein they received the species; as not being allowed to receive them in the bare hand. Others will have it a kind of veil, wherewith they covered the head. The most probable account is, that it was a sort of linen cloth or handkerchief wherein they received and preserved the eucharist in times of persecution, to be taken on occasion at home. This appears to have been the case by the practice of the first Christians, and by Tertullian's book *Ad Uxorem*.

DOMINICANS, an order of religious, called in some places *Jacobins*; and in others, *Predicants* or *Preaching Friars*.

The Dominicans take their name from their founder Dominic de Guzman, a Spanish gentleman, born in 1170, at Calaroga in Old Castile. He was first canon and archdeacon of Ossuna; and afterwards preached with great zeal and vehemence against the Albigenes in Languedoc, where he laid the first foundation of his order. It was approved of in 1215 by Innocent III. and confirmed in 1216 by a bull of Honorius III. under the title of *St Augustin*; to which Dominic added several austere precepts and observances, obliging the brethren to take a vow of absolute poverty, and to abandon entirely all their revenues and possessions; and also the title of *Preaching Friars*, because public instruction was the main end of their institution.

The first convent was founded at Thoulouse by the bishop thereof and Simon de Montfort. Two years afterwards they had another at Paris, near the bishop's house; and some time after a third in the rue St Jacques, (St James's street), whence the denomination of *Jacobins*.

Just before his death, Dominic sent Gilbert de Fresney, with twelve of the brethren, into England, where they founded their first monastery at Oxford in the year 1221, and soon after another at London. In

the year 1276 the mayor and aldermen of the city of London gave them two whole streets by the river Thames, where they erected a very commodious convent, whence that place is still called *Black Friars*, from the name by which the Dominicans were called in England,

St Dominic, at first, only took the habit of the regular canons; that is, a black cassock and rochet: but this he quitted in 1219, for that which they now wear, which it is pretended was shown by the blessed Virgin herself to the beatified Renaud d'Orleans.

This order is diffused throughout the whole known world. It has forty-five provinces under the general, who resides at Rome; and 12 particular congregations or reforms, governed by vicars general.

They reckon three popes of this order, above sixty cardinals, several patriarchs, a hundred and fifty archbishops, and about eight hundred bishops; beside masters of the sacred palace, whose office has been constantly discharged by a religious of this order, ever since St Dominic, who held it under Honorius III. in 1218.

Of all the monastic orders, none enjoyed a higher degree of power and authority than the Dominican friars, whose credit was great, and their influence universal. But the measures they used in order to maintain and extend their authority were so perfidious and cruel, that their influence began to decline towards the beginning of the sixteenth century. The tragic story of Jetzer, conducted at Bern in 1509, for determining an uninteresting dispute between them and the Franciscans, relating to the *immaculate conception*, will reflect indelible infamy on this order. See an account of it in Burnet's Travels through France, Italy, Germany, and Switzerland, p. 31. or Mosheim's Eccl. Hist. vol. iii. p. 294. 8vo. They were indeed perpetually employed in stigmatizing with the opprobrious name of heresy numbers of learned and pious men; in encroaching upon the rights and properties of others, to augment their possessions; and in laying the most iniquitous snares and stratagems for the destruction of their adversaries. They were the principal counsellors, by whose instigation and advice Leo X. was determined to the public condemnation of Luther. The papal see never had more active and useful abettors than this order, and that of the Jesuits.

The dogmata of the Dominicans are usually opposite to those of the Franciscans.

There are also nuns or sisters of this order, called in some places *Preaching Sisters*. These are even more ancient than the friars; St Dominic having founded a society of religious maids at Prouilles some years before the institution of his order of men; viz. in 1206.

There is also a third order of Dominicans, both for men and women.

DOMINION, (*Dominium*) in the civil law, signifies the power to use or dispose of a thing as we please.

DOMINION, or *Domination*. See **DOMINATION**.

DOMINIS, MARK ANTONY DE, archbishop of Spalatro in Dalmatia at the close of the 15th and beginning of the 16th centuries, was a man whose fickleness in religion proved his ruin. His preferment, instead of

Domi-
cans
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Dominis.

Donium of attaching him to the church of Rome, rendered him disaffected to it. Becoming acquainted with our Bishop Bedell, while chaplain to Sir Henry Wotton ambassador from James I. at Venice, he communicated his books *De Republica Ecclesiastica* to him; which were afterwards published at London, with Bedell's corrections. He came to England with Bedell; where he was received with great respect, and preached and wrote against the Romish religion. He is said to have had a principal hand in publishing Father Paul's *History of the Council of Trent*, at London, which was inscribed to James in 1619. But on the promotion of Pope Gregory XIV. who had been his schoolfellow and old acquaintance, he was deluded by Gondomar the Spanish ambassador into the hopes of procuring a cardinal's hat, by which he fancied he should prove an instrument of great reformation to the church. Accordingly he returned to Rome in 1622, recanted his errors, and was at first well received: but he afterwards wrote letters to England, repenting his recantation; which being intercepted, he was imprisoned by Pope Urban VIII. and died in 1625. He was also the author of the first philosophical explanation of the rainbow, which before his time was regarded as a prodigy.

DOMINIUM EMINENS, in Scots law, that power which the state or sovereign has over private property, and by which the proprietor may be compelled to sell it for an adequate price where public utility requires. See *LAW INDEX*.

DOMINIUM Directum, in Scots Law, the right which a superior retains in his lands, notwithstanding the feudal grant to his vassal. See *LAW INDEX*.

DOMINIUM Utile, in Scots Law, the right which the vassal acquires in the lands by the feudal grant from his superior. See *LAW INDEX*.

DOMINUS, in ancient times, a title prefixed to a name, usually to denote the person either a knight or a clergyman. See *VICĒ Dominus*.

The title was sometimes also given to a gentleman not dubbed; especially if he were lord of a manor. See **DOM**, **GENTLEMAN**, and **SIRE**.

In Holland the title *dominus* is still retained, to distinguish a minister of the reformed church.

DOMITIAN, the Roman emperor, son to Vespasian, was the last of the 12 Cæsars. See (*History of*) **ROME**.

DON, or **TANAIS**, a river of Russia, which takes its rise from the small lake of St John, near Tula, in the government of Moscow, and passing through part of the province of Voronetz, a small portion of the Ukraina-Slobodskaja, and the whole province of Azof, divides itself near Tcherkask into three streams, and falls in these separate branches into the sea of Azof. This river has so many windings, is in many parts so shallow, and abounds with such numerous shoals, as to be scarcely navigable, excepting in the spring, upon the melting of the snows; and its mouth is also so choked up with sand, that only flat-bottomed vessels, excepting in the same season, can pass into the sea of Azof. The banks of the Don, and the rivulets which fall into it, are clothed with large tracts of forest, whose timber is floated down the stream to St Demetri and Rostof, where the frigates for the sea of Azof are chiefly constructed. The navigation of the Don, Mr Coxe observes, may possibly hereafter be rendered highly valuable, by conveying to the Black sea the iron of Siberia, the Chinese goods, and the Persian merchan-

dise: which latter commodities, as well as the products of India, formerly found their way into Europe through this same channel.

DON is also the name of a river in Scotland, noticed under the article **ABERDEEN**; the Old Town being situated near its mouth. See **ABERDEEN**.

DON Martin de Mayorca, the name given by the Spaniards to a cluster of islands in the South sea, which were discovered in 1781 by Don F. A. Maurelle. According to the description given of these islands, they abound with tropical fruits and roots, are in a tolerable state of cultivation, and the inhabitants have made some progress in civilization. Their government, manners, and dress, resemble in most points those of the natives of the other South sea islands. In thieving, whether in disposition or dexterity, they seemed inferior to none. In one of these islands Don Maurelle found a good harbour, which he places in 18. 36. S. Lat. and in 177. 48. W. Long.

DONARIA, among the ancients, in its primary signification, was taken for the places where the oblations offered to the gods were kept; but afterwards was used to denote the offerings themselves; and sometimes, though improperly, the temples.

DONATIA, a genus of plants belonging to the triandria class. See *BOTANY INDEX*.

DONATION, (*Donatio*), an act or contract whereby a man transfers to another either the property or the use of the whole or a part of his effects as a free gift.

A donation, to be valid and complete, supposes a capacity both in the donor and the donee; and requires consent, acceptance, and delivery; and by the French law registry also.

DONATION Mortis Causa, in Law, a disposition of property made by a person in his last sickness, who apprehending his dissolution near, delivers, or causes to be delivered to another, the possession of any personal goods, to keep in case of his decease. If the donor dies, this gift needs not the consent of his executor; but it shall not prevail against creditors; and it is accompanied with this implied trust, that, if the donor lives, the property shall revert to himself, being only given in prospect of death, or *mortis causa*. This method of donation seems to have been conveyed to us from the civil lawyers, who borrowed it from the Greeks.

DONATISTS, ancient schismatics in Africa, so denominated from their leader Donatus.

This sect arose in the year 311, when, in the room of Mensurius, who died in that year on his return to Rome, Cæcilian was elected bishop of Carthage, and consecrated by the African bishops alone, without the concurrence of those of Numidia. The people refused to acknowledge him, and set up Majorinus in opposition; who, accordingly, was ordained by Donatus bishop of Casæ Nigræ. The Donatists were condemned, in a council held at Rome, two years after their separation; and afterwards in another at Arles, the year following; and again at Milan, before Constantine the Great, in 316, who deprived them of their churches, sent their seditious bishops into banishment, and even punished some of them with death. Their cause was espoused by another Donatus, called the *great*, the principal bishop of that sect, who, with numbers of his followers, was exiled by order of Constantine. Many of them were punished with great severity. See **CIRCUMCELLIONES**. However, after the

Donatists
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Donative.

accession of Julian to the throne in 362, they were permitted to return, and restored to their former liberty. Gratian published several edicts against them; and in 377 deprived them of their churches, and prohibited all their assemblies. But notwithstanding the severities they suffered, it appears that they had a very considerable number of churches towards the close of this century; but at this time they began to decline, on account of a schism among themselves, occasioned by the election of two bishops, in the room of Parmenian, the successor of Donatus; one party elected Primian, and were called *Primianists*, and another Maximian, and were called *Maximianists*. Their decline was also precipitated by the zealous opposition of St Augustine, and by the violent measures which were pursued against them, by order of the emperor Honorius, at the solicitation of two councils held at Carthage; the one in 404, and the other in 411. Many of them were fined, the bishops were banished, and some put to death. This sect revived and multiplied under the protection of the Vandals, who invaded Africa in 427, and took possession of this province; but it sunk again under new severities, when their empire was overturned in 534. Nevertheless, they remained in a separate body till the close of this century, when Gregory, the Roman pontiff, used various methods for suppressing them; his zeal succeeded, and there are few traces to be found of the Donatists after this period. They were distinguished by other appellations; as *Circumcelliones*, *Montenses* or *Mountaineers*, *Campites*, *Rupites*, &c. They held three councils, or conciliabules; one at Cirta in Numidia, and two at Carthage.

The errors of the Donatists, besides their schism, were, 1. That baptism conferred out of the church, that is, out of their sect, was null; and accordingly they rebaptised those who joined their party from other churches, and re-ordained their ministers. 2. That theirs was the only true, pure, and holy church; all the rest of the churches they held as prostitute and fallen.

Donatus seems likewise to have given into the doctrine of the Arians, with whom he was closely allied; and accordingly, St Epiphanius, Theodoret, and some others, accused the Donatists of Arianism; and it is probable that the charge was well founded, because they were patronized by the Vandals, who held that doctrine. But St Augustine, Ep. 185. to Count Boniface, & Haer. 69. affirms, that the Donatists, in this point, kept clear of the errors of their leader.

DONATIVE, (*Donativum*), a present made by any person; called also *gratuity*.

The Romans made large donatives to their soldiers. Julia Pia, wife of the emperor Severus, is called on certain medals *mater castrorum*, because of the care she took of the soldiery, by interposing for the augmentation of their donatives, &c.

Donative was properly a gift made to the soldiery; as *congiarium* was that made to the people. Salmasius, on his notes to Lampridius, in his Life of Heliogabalus, mentioning a donative that emperor gave of three pieces of gold per head, observes, that this was the common and legitimate rate of a donative. Casaubon, in his notes on the Life of Pertinax by Capitolinus, observes, that Pertinax made a promise of 3000 denarii to each soldier; which amounts to upwards of 97 pounds sterling. The same author writes, that the legal donative was 20,000 denarii; and that

it was not customary to give less, especially to the prætorian soldiers; that the centurions had double, and the tribunes, &c. more in proportion.

Donative
||
Donne.

DONATIVE, in the canon law, a benefice given, and collated to a person, by the founder or patron; without either presentation, institution, or induction by the ordinary.

If chapels founded by laymen be not approved by the diocesan, and, as it is called, *spiritualized*, they are not accounted proper benefices, neither can they be conferred by the bishop, but remain to the pious disposition of the founders; so that the founders, and their heirs, may give such chapels without the bishop.

Gwin observes, that the king might of ancient time found a free chapel, and exempt it from the jurisdiction of the diocesan; so may he, by letters patent, give liberty to a common person to found such a chapel, and make it donative, not presentable; and the chaplain, or beneficiary, shall be deprivable by the founder or his heir, and not by the bishop. And this seems to be the original of donatives in England.

Donatives are within the statute against simony; and if they have cure of souls, within that against pluralities. If the patron of a donative doth not nominate a clerk, there can be no lapse thereof, unless it be specially provided for in the foundation; but the bishop may compel him to do it by spiritual censures. But if it be augmented by Queen Anne's bounty, it will lapse like other presentative livings. 1 Geo. I. stat. 2. cap. 10. The ordinary cannot visit a donative, and therefore it is free from procuracy, and the incumbent is exempted from attendance at visitations.

All bishoprics in ancient times were donative by the king. Again, where a bishop has the gift of a benefice, it is properly called a *donative*, because he cannot present to himself.

DONATORY, in *Scots Law*, that person to whom the king bestows his right to any forfeiture that has fallen to the crown.

DONATUS, a schismatic bishop of Carthage, founder of the sect of DONATISTS. His followers swore by him, and honoured him like a god. He died about 368.

DONATUS, *Ælius*, a famous grammarian, lived at Rome in 354. He was one of St Jerome's masters; and composed commentaries on Terence and Virgil, which are esteemed.

DONAWERT, a strong town of Germany, in the circle of Bavaria, on the frontiers of Swabia. It has been taken and retaken several times in the wars of Germany; and was formerly an imperial city, but at present is subject to the duke of Bavaria. E. Long. 10. 32. N. Lat. 48. 32.

DONAX, a genus of shells belonging to the bivalves. See CONCHOLGY Index.

DONCASTER, a market town of Yorkshire, 37 miles south of York. It has been long noted for the manufacture of stockings, knitted waistcoats and gloves. Doncaster gives the English title of earl to the duke of Buccleugh in Scotland, which belonged to his ancestor the duke of Monmouth, but was omitted out of the forfeiture. W. Long. 1. 12. N. Lat. 53. 33.

DONNE, DR JOHN, an excellent poet and divine of the 17th century. His parents were of the Romish religion, and used their utmost efforts to keep him firm to it; but his early examination of the controversy between

Donne
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Doria.

Doria,
Doric.

tween the church of Rome and the Protestants, at last determined him to adhere to the latter. He travelled into Italy and Spain; where he made many useful observations, and learned their languages to perfection. Soon after his return to England, Sir Thomas Egerton, keeper of the great seal, appointed him his secretary; in which post he continued five years. He marrying privately Anne the daughter of Sir George Moore then chancellor of the garter, and niece to the lord keeper's lady; was dismissed from his place, and thrown into prison. But he was reconciled to Sir George by the good offices of Sir Francis Wolley. In 1612, he accompanied Sir Robert Drury to Paris. During this time, many of the nobility solicited the king for some secular employment for him. But his majesty, who took pleasure in his conversation, had engaged him in writing his *Pseudo Martyr*, printed at London in 1610; and was so highly pleased with that work, that in 1614 he prevailed with him to enter into holy orders; appointed him one of his chaplains, and procured him the degree of doctor of divinity from the university of Oxford. In 1619, he attended the earl of Doncaster in his embassy into Germany. In 1621, he was made dean of St Paul's; and the vicarage of St Dunstan in the West, in London, soon after fell to him; the advowson of it having been given to him long before by Richard earl of Dorset. By these and other preferments, he was enabled to be charitable to the poor, kind to his friends, and to make good provision for his children. He wrote, besides the above, 1. Devotions upon emergent occasions. 2. The ancient History of the Septuagint, translated from the Greek of Aristeus, quarto. 3. Three volumes of sermons, folio. 4. A considerable number of poems: and other works. His writings show him to be a man of incomparable wit and learning; but his greatest excellence was satire. He had a prodigious richness of fancy, but his thoughts were much debased by his versification. He was, however, highly celebrated by all the great men of that age.

DONOR, in *Law*, the person who gives lands or tenements to another in tail, &c.; as he to whom such lands, &c. are given, is the *donee*.

DOOMSDAY BOOK. See *DOMESDAY Book*.

DOOR, in *Architecture*. See *ARCHITECTURE*, N^o 76.

DOR, the English name of the common black beetle. Some apply it also to the dusty beetle, that flies about hedges in the evening. See *SCARABÆUS*, *ENTOMOLOGY Index*.

DORADO, in *Astronomy*, a southern constellation, not visible in our latitude; it is also called *xiphias*. The stars of this constellation, in Sharp's Catalogue, are six.

DORCHESTER, the capital of Dorsetshire, situated on the river Frome, on a Roman road, eight miles north of Weymouth. W. Long. 2. 45. N. Lat. 50. 40. It gives the title of marquis to the noble family of Pierpoint, duke of Kingston; sends two members to parliament; and is a town of great antiquity.

DOREE, or JOHN DOREE. See *ZEUS*, *ICHTHYOLOGY Index*.

DORIA, ANDREW, a gallant Genoese sea officer, born in 1466. He entered into the service of Francis I. of France; but preserved that spirit of independence

so natural to a sailor and a republican. When the French attempted to render Savona, long the object of jealousy of Genoa, its rival in trade, Doria remonstrated against the measure in a high tone; which bold action, represented by the malice of his courtiers in the most odious light, irritated Francis to that degree, that he ordered his admiral Barbesieux to sail to Genoa, then in the hands of the French troops, to arrest Doria, and to seize his galleys. This rash order Doria got timely hints of; retired with all his galleys to a place of safety; and, while his resentment was thus raised, he closed with the offers of the emperor Charles V. returned his commission with the collar of St Michael to Francis, and hoisted the Imperial colours. To deliver his country, weary alike of the French and Imperial yoke, from the dominion of foreigners, was now Doria's highest ambition; and the favourable moment offered. Genoa was afflicted with the pestilence, the French garrison was greatly reduced and ill paid, and the inhabitants were sufficiently disposed to second his views. He sailed to the harbour with 13 galleys, landed 500 men, and made himself master of the gates and the palace with very little resistance. The French governor with his feeble garrison retired to the citadel, but was quickly forced to capitulate; when the people ran together, and levelled the citadel with the ground. It was now in Doria's power to have rendered himself the sovereign of his country; but, with a magnanimity of which there are few examples, he assembled the people in the court before the palace, disclaimed all pre-eminence, and recommended to them to settle that form of government they chose to establish. The people, animated by his spirit, forgot their factions, and fixed that form of government which has subsisted ever since with little variation. This event happened in 1528. Doria lived to a great age, respected and beloved as a private citizen; and is still celebrated in Genoa by the most honourable of all appellations, "The father of his country, and the restorer of its liberty."

DORIC, in general, any thing belonging to the Dorians, an ancient people of Greece, inhabiting near Mount Parnassus. See *DORIS*.

DORIC, in *Architecture*, is the second of the five orders; being that between the Tuscan and Ionic. It is usually placed upon the Attic base, though originally it had no base. See *ARCHITECTURE*, N^o 43.

At its first invention it was more simple than at present; and when in after times it was more adorned and enriched, the appellation *Doric* was restrained to this richer manner, and the primitive simple manner was called by a new name, the Tuscan order, which was chiefly used in temples; as the former, being more light and delicate, was for porticoes and theatres. The tradition is, that Dorus, king of Achaia, having first built a temple of this order at Argos, which he dedicated to Juno, occasioned it to be called *Doric*; though others derive its name from its being invented or used by the Dorians.

The moderns, on account of its solidity, use it in large strong buildings; as in the gates of cities and citadels, the outside of churches, and other massy works, where delicacy of ornament would be unsuitable. The gate of Burlington house in Piccadilly is of the Doric order.

Doric.

The most considerable ancient monuments of this order, are the theatre of Marcellus at Rome, wherein the capital, the height of the frieze, and its projecture, are much smaller than in the modern architecture; and the Parthenion, or temple of Minerva, at Athens, in which the short and massy columns bear upon the pavement without a base; and the capital is a simple torus, with its cincture, and a square, plain, and solid abacus.

Doric Cymatium. See *CYMA*.

Doric Dialect, one of the five dialects, or manners of speaking, which obtained among the Greeks.

It was first used by the Lacedemonians, and particularly those of Argos; thence it passed into Epirus, Libya, Sicily, the islands of Rhodes, and Crete. In this dialect, Archimedes and Theocritus wrote, who were both of Syracuse; as likewise Pindar.

In strictness, however, we should rather define Doric, the manner of speaking peculiar to the Dorians, after their recess near Parnassus and Asopus; and which afterwards came to obtain among the Lacedemonians, &c. Some even distinguish between the Lacedemonian and Doric; but, in reality, they were the same; setting aside a few particularities in the language of the Lacedemonians; as is shown by Rulandus, in his excellent treatise *De Lingua Græca ejusque Dialectis*, lib. v.

Beside the authors already mentioned to have written in the Doric dialect, we might add Archytas of Tarentum, Bion, Callinus, Simonides, Bacchylides, Cypselas, Alcman, and Sophron.

Most of the medals of the cities of Græcia Magna, and Sicily, favour of the Doric dialect in their inscription: witness, ΑΜΒΡΑΚΙΩΤΑΝ, ΑΠΟΛΛΩΝΙΑΤΑΝ, ΑΧΕΡΟΝΤΑΝ, ΑΧΥΡΙΑΤΑΝ, ΗΡΑΚΛΕΩΤΑΝ, ΤΡΑΧΙΝΙΩΝ. ΘΕΡΜΙΤΑΝ, ΚΑΥΑΟΝΙΑΤΑΝ, ΚΟΡΙΑΤΑΝ, ΤΑΥΡΟΜΕΝΙΑΤΑΝ, &c. Which shows the countries wherein the Doric dialect was used.

The general rules of this dialect are thus given by the Port Royalists.

D's Ηα d'ω grand, d's do et d's l'α fait le Dore.
D'ω fait ηα; d's, ω; et d'ω ω fait encore.
Οste ι de l'infini: et pour le singulier
Se sert au feminin du nombre plurier.

But they are much better explained in the fourth book of Rulandus; where he even notes the minuter differences of the dialects of Sicily, Crete, Tarentum, Rhodes, Lacedæmon, Laconia, Macedonia, and Thessaly.

The *a* abounds everywhere in the Doric; but this dialect bears so near a conformity to the Æolic, that many reckon them but one.

Doric Mode, in *Music*, the first of the authentic modes of the ancients. Its character is to be severe, tempered with gravity and joy; and is proper upon religious occasions, as also to be used in war. It begins *D, la, sol, re*. Plato admires the music of the Doric mode, and judges it proper to preserve good manners as being masculine; and on this account allows it in his commonwealth. The ancients had likewise their subdoric or hypodoric mode, which was one of the plagal modes. Its character was to be very grave and solemn; it begins with *re*, a fourth lower than the doric.

DORING, or *DARING*, among sportsmen, a term used to express a method of taking larks, by means of a clap-net and a looking-glass. For this sport there must be provided four sticks very straight and light, about the bigness of a pike; two of these are to be four feet nine inches long, and all notched at the edges or the ends. At one end of each of these sticks there is to be fastened another of about a foot long on one side; and on the other side a small wooden peg about three inches long. Then four or more sticks are to be prepared, each of one foot length; and each of these must have a cord of nine feet long fastened to it at the end. Every one should have a buckle for the commodious fastening on to the respective sticks when the net is to be spread.—A cord must also be provided, which must have two branches. The one must have nine feet and a half, and the other ten feet long, with a buckle at the end of each; the rest, or body of the cord, must be 24 yards long. All these cords, as well the long ones as those about the sticks, must be well twisted and of the bigness of one's little finger. The next thing to be provided is a staff of four feet long, pointed at one end, and with a ball of wood at the other, for the carrying these conveniences in a sack or wallet.—There should also be carried, on this occasion, a spade to level the ground where there may be any little irregularities; and two small rods, each 18 inches long, and having a small rod fixed with a pack-thread at the larger end of the other. To these are to be tied some pack-thread loops, which are to fasten in the legs of some larks: and there are to be reels to these, that the birds may fly a little way up and down. When all this is done, the looking-glass is to be prepared in the following manner: Take a piece of wood about an inch and a half thick, and cut it in form of a bow, so that there may be about nine inches space between the two ends; and let it have its full thickness at the bottom, that it may receive into it a false piece; in the five corners of which there are to be set in five pieces of looking-glass. These are so fixed, that they may dart their light upwards; and the whole machine is to be supported on a moveable pin, with the end of a long line fixed to it, and made in the manner of the children's plaything of an apple and a plumbstone; so that the other end of the cord being carried through a hedge, the barely pulling it may set the whole machine of the glasses a turning. This and the other contrivances are to be placed in the middle between the two nets. The larks fixed to the place, and termed *calls*, and the glittering of the looking-glasses as they twirl round in the sun, invite the other larks down; and the cord that communicates with the nets, and goes through the hedge, gives the person behind an opportunity of pulling up the nets, so as to meet over the whole, and take every thing that is between them. The places where this sort of sporting succeeds best are open fields remote from any trees and hedges except one by way of shelter for the sportsman: and the wind should always be either in the front or back; for if it blows sidewise, it prevents the playing of the net.

DORIS, a country of Greece, between Phocis, Thessaly, and Acarnania. It received its name from Dorus the son of Deucalion, who made a settlement there. It was called *Tetrapolis* from the four cities of Pindus.

Doring,
Doris.

Doris
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Dorset-
shire.

Pindus or Dryopis, Erineum, Cytinium, and Borium, which it contained. To these four some add Lilaëum and Carphia, and therefore call it *Hexapolis*. The name of Doris has been common to many parts of Greece. The Dorians in the age of Deucalion inhabited Phthiotis, which they exchanged for Histiaotis, in the age of Dorus. From thence they were driven by the Cadmeans, and came to settle near the town of Pindus. From thence they passed into Dryopis, and afterwards into Peloponnesus. Hercules having re-established Ægimius king of Phthiotis or Doris, who had been driven from his country by the Lapithæ, the grateful king appointed Hyllus the son of his patron to be his successor, and the Heraclidæ marched from that part of the country to go to recover Peloponnesus. The Dorians sent many colonies into different places, which bore the same name as their native country. The most famous of these is in Asia Minor, of which Halicarnassus was once the capital. This part of Asia Minor was called *Hexapolis*, and afterwards *Pentapolis*.

DORIS, a genus of animals, belonging to the order of vermes mollusca. See HELMINTHOLOGY *Index*.

DORMANT, in *Heraldry*, is used for the posture of a lion, or any other beast, lying along in a sleeping attitude with the head on the fore paws: by which it is distinguished from the *couchant*, where, though the beast is lying, yet he holds up his head.

DORMER, in *Architecture*, signifies a window made in the roof of a house, or above the entablature, being raised upon the rafters.

DORMITORY, a gallery in convents or religious houses, divided into several cells, in which the religious sleep or lodge.

DORMOUSE. See MUS and SCIURUS, MAMMALIA *Index*.

DORONICUM, LEOPARD'S BANE; a genus of plants belonging to the syngenesia class; and in the natural method ranking under the 49th order, *Compositæ*. See BOTANY *Index*.

DORSAL, an appellation given to whatever belongs to the back. See DORSUM.

DORSET, THOMAS SACKVILLE, Lord Buckhurst. See SACKVILLE.

DORSET, Charles Sackville, earl of. See SACKVILLE.

DORSETSHIRE, a county of England, bounded on the south by the English channel, on the north by Somersetshire and Wiltshire, on the east by Hampshire, and on the west by Devonshire and some part of Somersetshire. It is between 40 and 50 miles long from east to west, and 34 broad from south to north, and contains 34 hundreds, 22 market towns, and 248 parishes. This county enjoys a mild, pleasant, and wholesome air, and a deep, rich, and fertile soil, finely diversified. Towards the north it is level, under the high lands that divide it from Somersetshire, where there are fine arable grounds that will yield large crops of different kinds of grain. But on the south, from the borders of Hampshire by the sea coast, for an extent of almost 20 miles in length, and in some places four or five in breadth, is a heathy common, which renders this county less populous than it otherwise would be. From east to west runs a ridge of hills called the *Downs*, abounding with sweet and short herbage, which nourishes a vast number of sheep equally esteemed for their

flesh and fleece. The country is also very plentifully watered; and in all respects so well suited both for pleasure and profit, that it was distinguished by the Romans above all others. They had more stations and summer camps in Dorsetshire than in any other county. That the Saxons had the same regard for it, is evident from the number of palaces they had in it, the stately ministers they built, and the express directions they gave that their bodies should be interred in those monuments of their piety. This county yields many and very valuable commodities. The quarries in Purbeck and Portland supply stones of different qualities, suited to various uses, and in prodigious quantities, together with some very rich and beautiful marble. The best tobacco-pipe clay in England is also found in this county. Madder, hemp, and flax, also thrive in many places, grain of all sorts, &c.

DORSIFEROUS PLANTS, among botanists, such as are of the capillary kind, without stalks, and which bear their seeds on the back side of their leaves.

DORSTENIA, CONTRAYERVA; a genus of plants belonging to the tetrandria class; and in the natural method ranking under the 53d order, *Scabride*. See BOTANY *Index*.

DORSUM, the BACK, in *Anatomy*, comprehends all the posterior part of the trunk of the body from the neck to the buttocks. See ANATOMY *Index*.

DORT, or DORDRECHT, a city of Holland, which holds the first rank in the assembly of the states. It is seated in a small island formed by the rivers Meuse, Merue, Rhine, and Linghe. The Meuse, on which it stands, gives it a good harbour, and separates it from the islands of Iffelmonde and Ablas. It is divided from Beyerland by a canal. The harbour is very commodious for the merchandises which come down the Rhine and the Meuse, which keep it in a flourishing condition. Its strength consists in being surrounded with water. Its walls are old, and defended by round towers. It is very rich, and well built with brick, and had formerly the exclusive right of coining money. It is at present the staple town for wines, particularly Rhenish. It was detached from the main land in 1421, on the 17th of November, by a flood occasioned by the breaking down of the dike, which overwhelmed 70 villages, and about 100,000 persons. However, by time and the industry of the inhabitants, a great part of the land is recovered. It has two principal canals, namely, the New and Old Haven, by which heavy loaded vessels may enter into the city. Over the Old Haven is a large bridge well built with brick.

Dort was almost reduced to ashes in the year 1457; there being then consumed 2000 houses, with the halls, hospital, and church of Notre Dame: but they are now well provided with fire engines and watchmen to prevent the like disaster. This city is famous for the meeting of the clergy called the *Synod of Dort*, in which the Calvinists obtained a sentence against the Arminians, who were called the *Remonstrants*. The dispute between the contending parties occasioned strange disorders, skirmishes and murders, in most of the principal cities. Those ministers who would not subscribe to the decree of the synod were banished, of whom there were above 100. E. Long. 4. 36. N. Lat. 51. 39.

Doriferous
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Dort.

Dort
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Dositheans

Synod of Dort, a national synod, summoned by authority of the states general, the provinces of Holland, Utrecht, and Overijssel excepted, and held at Dort in 1618. The most eminent divines of the United Provinces, and deputies from the churches of England, Scotland, Switzerland, Bremen, Heflia, and the Palatinate, assembled on this occasion, in order to decide the controversy between the Gomarists or Calvinists and Arminians; the latter of whom were declared corrupters of the true religion. But the authority of this synod was far from being universally acknowledged either in Holland or in England. The provinces of Friesland, Zealand, Utrecht, Guelderland, and Groningen, could not be persuaded to adopt their decisions; and they were opposed by the authority of Archbishop Laud and King James I. in England. The reformed churches in France, though at first disposed to give a favourable reception to the decisions of this famous synod, in process of time espoused doctrines very different from those of the Gomarists; and the churches of Brandenburg and Bremen would not suffer their doctors to be tied down to the opinions and tenets of the Dutch divines. The liberty of private judgment with respect to the doctrines of predestination and grace, which the spirit that prevailed among the divines of Dort seemed so much adapted to discourage and suppress, acquired new vigour in consequence of the arbitrary proceedings of this assembly.

DORTMUND, a rich, populous, and imperial city of Germany, in the circle of Westphalia. It is pretty large, but not well built. Formerly it was one of the Hanse towns. Its territory also was formerly a county, and had lords of its own; but since 1504, it hath been possessed entirely by the city.

DORYPHORI (from *δορυ*, *spear*, and *φειρον*, *I bear*), an appellation given to the life-guard men of the Roman emperors. They were held in such high estimation, as frequently to have the command of armies conferred on them.—It was usual also for chief commanders to have their doryphori or life guard to attend them.

DOSE, in *Pharmacy*, &c. the quantity of a medicine to be taken at one time. The word is formed from the Greek *δοσις*, which signifies *gift*, or a thing given; from *διδωμι*, *do*, "I give."

DOSITHEANS, (*Dosithei*), an ancient sect among the Samaritans in the first century of the Christian era.

Mention is made in Origen, Epiphanius, Jerome, and divers other Greek and Latin fathers, of one Dositheus, the chief of a faction among the Samaritans; but the learned are not at all agreed as to the time wherein he lived. St Jerome, in his dialogue against the Luciferians, places him before our Saviour; wherein he is followed by Drusius, who in his answer to Serrarius places him about the time of Sennacherib king of Assyria. But Scaliger will have him posterior to our Saviour's time: And in effect Origen intimates him to have been contemporary with the apostles; where he observes, that he endeavoured to persuade the Samaritans that he was the Messiah foretold by Moses.

He had many followers; and his sect was still subsisting at Alexandria in the time of the patriarch Eulogius, as appears from a decree of that patriarch pub-

lished by Photius. In that decree, Eulogius accuses Dositheus of injuriously treating the ancient patriarchs and prophets, and attributing to himself the spirit of prophecy. He makes him contemporary with Simon Magus; and accuses him of corrupting the Pentateuch in divers places, and of composing several books directly contrary to the law of God.

Archbishop Usher takes Dositheus to be the author of all the changes made in the Samaritan Pentateuch, which he argues from the authority of Eulogius. But all we can justly gather from the testimony of Eulogius is, that Dositheus corrupted the Samaritan copies since used by that sect; but that corruption did not pass into all the copies of the Samaritan Pentateuch now in use among us, which vary but little from the Jewish Pentateuch: And in this sense we are to understand that passage in a Samaritan chronicle, where it is said that Doufis, i. e. Dositheus, altered several things in the law of Moses. The author of that chronicle, who was a Samaritan by religion, adds, that their high-priest sent several Samaritans to seize Doufis and his corrupted copy of the Pentateuch.

Epiphanius takes Dositheus to have been a Jew by birth, and to have abandoned the Jewish party for that of the Samaritans. He imagines him likewise to have been the author of the sect of the Sadducees: Which seems inconsistent with his being later than our Saviour; and yet the Jesuit Serrarius agrees to make Dositheus the master of Sadoc, from whom the Sadducees are derived.

Tertullian, making mention of the same Dositheus, observes, that he was the first who dared to reject the authority of the prophets by denying their inspiration. But he charges that as a crime peculiar to that sectary, which in reality is common to the whole sect, who have never allowed any but the five books of Moses for divine.

DOSSER, a sort of basket to be carried on the shoulders of men. It is used in carrying the overplus earth from one part of a fortification to another where it is wanted. There are likewise small carts and wheelbarrows for the same use.

DOSSIL, in *Surgery*, is lint made into a cylindrical form, or resembling the shape of dates or olive stones. Dossils are sometimes secured by a thread tied round their middle.

DOTTEREL. See **CHARADRIUS**, **ORNITHOLOGY Index**.

DOU, or **DOUW**, **GERARD**. See **DOUW**.

DOUAY, or **DOWAY**, a large and strong city of the French Netherlands, situated in E. Long. 3. 0. N. Lat. 50. 25. It is situated on the river Scarpe, in a very fertile and pleasant country. The town is large and populous, and exceedingly well fortified. You enter it by six gates, and the streets from each of these gates lead to the market-place. Here is a venerable old town-house, adorned with the statues of the earls of Flanders, in which the magistrates assemble, and are renewed every thirteen months. Here also are held several country courts for the dependencies of Douay, which contain about 30 villages. The parliament of Douay was at first only a supreme council, established at Tournay in 1668, and erected into a parliament in 1686. But Tournay being taken by the allies in 1709, the parliament was removed to Cambrai; and upon

Dositheans
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Douay.

Double.

the yielding of Tournay to the Austrians by the treaty of Utrecht, the parliament was removed to Douay, where it still continues. This city was erected into an university like that of Louvain by Philip II. because of its being in the middle of so many great cities, and Louvain at so great a distance, that the children on that side of the country were generally sent for their education into France. Before the French revolution it contained 14 colleges, all governed and settled after the manner of those at Louvain; and the schools of philosophy, canon and civil law, and physic, were disposed also after the same manner. There was a considerable seminary here of English Roman Catholics, founded by Philip II. of Spain about the year 1560. There were also a great number of convents; and amongst the rest two English, one of Franciscan friars, the other of Benedictine monks. Douay was taken from the Spaniards by the French king in person in 1667, after a short resistance. That prince made it very strong, and built a fort about a cannon shot below it upon the Scarpe, with sluices, by which the adjacent country could be drowned. The allies laid siege to it in 1710, under the command of the duke of Marlborough; and after a vigorous defence, the town and Fort Scarpe surrendered upon honourable terms. It was retaken by the French in 1712, after the suspension of arms between Great Britain and France.

DOUBLE; two of a fort, one corresponding to the other.

DOUBLE Children, Double Cats, Double Pears, &c. Instances of these are frequent in the *Philosoph. Transf.* and elsewhere. See MONSTER.

Sir John Floyer, in the same *Transactions*, giving an account of a *double turkey*, furnishes some reflections on the production of *double animals* in general. Two turkeys, he relates, were taken out of an egg of the common size, when the rest were all hatched, which grew together by the flesh of the breast-bone, but in all other parts were distinct. They seemed less than the ordinary size, as wanting bulk, nutriment, and room for their growth; which latter, too, was apparently the occasion of their cohesion. For, having two distinct cavities in their bodies, and two hearts, they must have arisen from two cicatriculas; and, consequently, the egg had two yolks; which is no uncommon accident. He mentions a dried *double chicken* in his possession, which, though it had four legs, four wings, &c. had but one cavity in the body, one heart, and one head; and, consequently, was produced from one cicatricula.

So, Paræus mentions a *double infant*, with only one heart: in which case, the original or stamen of the infant was one, and the vessels regular; only, the nerves and arteries towards the extremities dividing into more branches than ordinary, produced *double parts*.

The same is the case in the *double flowers* of plants, occasioned by the richness of the soil. So it is in the eggs of quadrupeds, &c.

There are, therefore, two reasons of duplicity in embryos: 1. The conjoining or connexion of two perfect animals; and 2. An extraordinary division and ramification of the original vessels, nerves, arteries, &c.

DOUBLE Employment, in Music, a name given by M. Rameau to the two different manners in which the

chord of the sub-dominant may be regarded and treated, viz. as the fundamental chord of the sixth superadded, or as the chord of the great sixth, inverted from a fundamental chord of the seventh. In reality, the chords carry exactly the same notes, are figured in the same manner, are employed upon the same chord of the tone, in such a manner, that frequently we cannot discern which of the two chords the author employs, but by the assistance of the subsequent chord, which resolves it, and which is different in these different cases.

To make this distinction, we must consider the diatonic progress of the two notes which form the fifth and the sixth, and which, constituting between them the interval of a second, must one or the other constitute the dissonance of the chord. Now this progress is determined by the motion of the bass. Of these two notes, then, if the superior be the dissonance, it will rise by one gradation into the subsequent chord, the lower note will keep its place, and the higher note will be a superadded sixth. If the lower be the dissonance, it will descend into the subsequent chord, the higher will remain in its place, and the chord will be that of the great sixth. See the two cases of the *double employment* in Rousseau's Musical Dictionary, Plate D, fig. 12.

With respect to the composer, the use which he may make of the double employment, is to consider the chord in its different points of view, that from thence he may know how to make his entrance to it, and his exit from it; so that having arrived, for instance, at the chord of the superadded sixth, he may resolve it as a chord of the great sixth, and reciprocally.

M. D'Alembert has shown, that one of the chief uses of the double employment is, that we be able to carry the diatonic succession of the gamut even to an octave, without changing the mode, at least whilst we rise; for in descending we must change it. Of this gamut and its fundamental bass, an example will be found in Rousseau's Musical Dictionary, Plate D, fig. 13. It is evident, according to the system of M. Rameau, that all the harmonic successions which result from it, are in the same tone: for, in strictness, no other chords are there employed but three, that of the tonic, that of the dominant, and that of the sub-dominant; as this last, in the double employment, constitutes the seventh from the second note, which is employed upon the sixth.

With respect to what M. D'Alembert adds in his Elements of Music, p. 80. and which he repeats in the Encyclopédie, article *Double emploi*, viz. that the chord of the seventh *re fa la ut*, though we should even regard it only as inversion of *fa, la, ut, re*, cannot be followed by the chord *ut mi sol ut*; "I cannot (says Rousseau) be of his opinion in this point.

"The proof which he gives for it is, that the dissonance *ut* of the first chord cannot be resolved in the second; and this is true, since it remains in its place: but in this chord of the seventh *re fa la ut*, inverted from this chord of the superadded sixth, *fa la ut re*, it is not the *ut*, but the *re*, which is the dissonance; which, of consequence, ought to be resolved in ascending upon *mi*, as it really does in the subsequent chord; so that this procedure in the bass itself is forced, which, from *re*, cannot without an error return to *ut*, but ought to ascend to *mi*, in order to resolve the dissonance.

"M.

Double.

Double
||
Doublet.

“ M. D’Alembert afterwards shows, that this chord *re fa la ut*, when preceded and followed by that of the tonic, cannot be authorized by the double employment, and this is likewise very true; because this chord, though figured with a 7, is not treated as a chord of the seventh, neither when we make our entrance to it, nor our exit from it; or at least that it is not necessary to treat it as such, but simply as an inversion of the superadded sixth, of which the dissonance is the bass: in which case we ought by no means to forget, that this dissonance is never prepared. Thus, though in such a transition the double employment is not in question, though the chord of the seventh be no more than apparent, and impossible to be resolved by the rules, this does not hinder the transition from being proper and regular, as I have just proved to theorists. I shall immediately prove to practical artists, by an instance of this transition: which certainly will not be condemned by any one of them, nor justified by any other fundamental bass except my own. (See the Musical Dictionary, Plate D, fig. 14.)

“ I acknowledge, that this inversion of the chord of the sixth superadded, which transfers the dissonance to the bass, has been censured by M. Rameau. This author, taking for a fundamental chord the chord of the seventh, which results from it, rather chose to make the fundamental bass descend diatonically, and resolve one seventh by another, than to unfold this seventh by an inversion. I had dissipated this error, and many others, in some papers which long ago had passed into the hands of M. D’Alembert, when he was composing his Elements of Music; so that it is not his sentiment which I attack, but my own opinion which I defend.”

For what remains, the double employment cannot be used with too much reserve, and the greatest masters are the most temperate in putting it in practice.

DOUBLE Fichy, or *Fiché*, in *Heraldry*, the denomination of a cross, when the extremity has two points; in contradistinction to *fiché*, where the extremity is sharpened away to one point.

DOUBLE Octave, in *Music*, an interval composed of fifteen notes in diatonic progression; and which, for that reason, is called a *fifteenth*. “ It is (says Rousseau) an interval composed of two octaves, called by the Greeks *disdiapason*.”

It deserves, however, to be remarked, that in intervals less distant and compounded, as in the *third*, the *fifth*, the *simple octave*, &c. the lowest and highest extremes are included in the number from whence the interval takes its name. But, in the *double octave*, when termed a *fifteenth*, the simple number of which it is composed gives the name. This is by no means analogical, and may occasion some confusion. We should rather choose, therefore, to run any hazard which might occur from uniformly including all the terms of which the component intervals consist, and call the *double octave* a *sixteenth*, according to the general analogy. See *INTERVAL*.

DOUBLET, among lapidaries, implies a counterfeit stone composed of two pieces of crystal, and sometimes glass softened, together with proper colours between them; so that they make the same appearance to the eye as if the whole substance of the crystal had been tinged with these colours.

Doublet.

The impracticability of imparting tinges to the body of crystals, while in their proper and natural state, and the softness of glass, which renders ornaments made of it greatly inferior in wear to crystal, gave inducements to the introduction of colouring the surface of crystal wrought in a proper form, in such a manner, that the surfaces of two pieces so coloured being laid together, the effect might appear the same as if the whole substance of the crystal had been coloured. The crystals, and sometimes white transparent glass so treated, were called *doublets*; and at one time prevailed greatly in use, on account of the advantages, with respect to wear, such doublets had, when made of crystal, over glass, and the brightness of the colours which could with certainty be given to counterfeit stones this way, when coloured glass could not be procured, or at least not without a much greater expence. Doublets have not indeed the property which the others have, of bearing to be set transparent, as is frequently required in drops of ear-rings and other ornaments: but when mounted in rings, or used in such manner that the sides of the pieces, where the joint is made, cannot be inspected, they have, when formed of crystal, the title to a preference to the coloured glass; and the art of managing them is therefore, in some degree, of the same importance with that of preparing glass for the counterfeiting gems; and is therefore properly an appendage to it, as being entirely subservient to the same intention. The manner of making doublets is as follows:

Let the crystal or glass be first cut by the lapidaries in the manner of a brilliant, except that, in this case, the figure must be composed from two separate stones, or parts of stones, formed in the manner of the upper and under parts of a brilliant, if it was divided in a horizontal direction, a little lower than the middle. After the two plates of the intended stone are thus cut, and fitted so exactly that no division can appear when they are laid together, the upper part must be polished ready for setting; and then the colour must be put betwixt the two plates by this method. “ Take of Venice or Cyprus turpentine two scruples; and add to it one scruple of the grains of mastich chosen perfectly pure, free from foulness, and previously powdered. Melt them together in a small silver or brass spoon ladle, or other vessel, and put to them gradually any of the coloured substances mentioned below, being first well powdered; stirring them together as the colour is put in, that they may be thoroughly commixed. Warm then the doublets to the same degree of heat as the melted mixture; and paint the upper surface of the lower part, and put the upper one instantly upon it, pressing them to each other, but taking care that they may be conjoined in the most perfectly even manner. When the cement or paint is quite cold and set, the redundant part of it, which has been pressed out of the joint of the two pieces, should be gently scraped off the side, till there be no appearance of any colour on the outside of the doublets: and they should then be skilfully set; observing to carry the mounting over the joint, that the upper piece may be well secured from separating from the under one.

The colour of the ruby may be best imitated, by mixing a fourth part of carmine with some of the finest crimson lake that can be procured.

The

Doublet
||
Doubling.

The sapphire may be counterfeited with very bright Prussian blue, mixed with a little of the above-mentioned crimson lake, to give it a cast of the purple. The Prussian blue should not be very deep coloured, or but little of it should be used: for otherwise, it will give a black shade that will be injurious to the lustre of the doublets.

The emerald may be well counterfeited with distilled verdigrise, to which is added a little powdered aloes. But the mixture should not be strongly heated, or kept long over the fire after the verdigrise is added: for the colour is to be soon impaired by it.

The resemblance of the garnet may be made with dragon's blood; which, if it cannot be procured of sufficient brightness, may be helped by a very small quantity of carmine.

The amethyst may be imitated with the mixture of some Prussian blue with the crimson lake; but the proportions can only be regulated, by direction, as different parcels of the lake and Prussian blue vary extremely in the degree of strength of the colour.

The yellow topazes may be counterfeited by mixing the powdered aloes with a little dragon's blood, or by good Spanish anotto: but the colour must be very sparingly used, or the tinge will be too strong for the appearance of that stone.

The chrysolite, hyacinth, vinegar garnet, aigue marine, and other such weaker or more diluted colours, may be formed in the same manner, by lessening the proportions of the colours, or by compounding them together correspondently to the hue of the stone to be imitated; to which end it is proper to have an original stone, or an exact imitation of one, at hand when the mixture is made, in order to the more certain adapting the colours to the effect desired: and when these precautions are taken, and the operation well conducted, it is practicable to bring the doublets to so near a resemblance of the true stones, that even the best judges cannot distinguish them, when well set, without a peculiar manner of inspection.

There is, however, an easy method of distinguishing doublets, which is only to behold them betwixt the eye and light, in such a position, that the light may pass through the upper part and corners of the stone; when it will easily be perceived that there is no colour in the body of the stone.

DOUBLETS, a game on dice within tables; the men, which are only 15, being placed thus: Upon the six, cinque, and quatre points, there stand three men a-piece; and upon the trey, duce, and ace, only two. He that throws highest hath the benefit of throwing first, and what he throws he lays down, and so doth the other: what the one throws, and hath not, the other lays down for him, but on his own account; and thus they do till all the men are down, and then they bear. He that is down first, bears first; and will doubtless win the game, if the other throws not doublets to overtake him: which he is sure to do, since he advances or bears as many as the doublets make, viz. eight for two fours.

DOUBLING, in the military art, is the putting two ranks or files of soldiers into one. Thus, when the word of command is, *double your ranks*, the second, fourth, and sixth ranks march into the first, third, and fifth, so that the six ranks are reduced to three, and

VOL. VII. Part I.

the intervals between the ranks become double what they were before.

DOUBLING, among hunters, who say that a hare doubles, when she keeps in plain fields, and winds about to deceive the hounds.

DOUBLING, in the manege, a term applied to a horse, who is said to double his reins, when he leaps several times together, to throw his rider; thus it is said, *the ramingue doubles his reins, and makes pontlevis*.

DOUBLING, in Navigation, the art of sailing round, or passing beyond, a cape or promontory, so as that the cape or point of land separates the ship from her former situation, or lies between her and any distant observer.

DOUBLING Upon, in Naval Tactics, the act of enclosing any part of a hostile fleet between two fires, or of cannonading it on both sides.

It is usually performed by the van or rear of that fleet which is superior in number, taking the advantage of the wind, or of its situation and circumstances, and tacking or veering round the van or rear of the enemy, who will thereby be exposed to great danger, and can scarcely avoid being thrown into a general confusion.

DOUBLON, or DUBLON, a Spanish and Portuguese coin, being the double of a PISTOLE.

DOUBTING, the act of withholding our assent from any proposition, on suspicion that we are not thoroughly apprised of the merits thereof, or from not being able peremptorily to decide between the reasons for and against it.

Doubting is distinguished by the schoolmen into two kinds, *dubitatio sterilis*, and *dubitatio efficax*. The former is that where no determination ensues: in this manner the Sceptics and Academics doubt, who withhold their assent from every thing. See SCEPTICS, &c.

The latter is followed by judgment, which distinguishes truth from falsehood: such is the doubting of the Peripatetics and Cartesians. The last in particular are perpetually inculcating the deceitfulness of our senses, and tell us that we are to doubt of every one of their reports, till they have been examined and confirmed by reason. On the other hand, the Epicureans teach, that our senses always tell truth; and that, if you go ever so little from them, you come within the province of doubting. See CARTESIANS, EPICUREANS, &c.

DOUBTING, in Rhetoric, a figure wherein the orator appears some time fluctuating, and undetermined what to do or say. Tacitus furnishes us with an instance of doubting, almost to a degree of distraction, in those words of Tiberius written to the senate: *Quid scribam, P. S. aut quomodo scribam, aut quid omnino non scribam hoc tempore, dum me deaque pejus perdant quam perire quotidie sentio, si scio*.

DOUCETS, or DOULCETS, among sportsmen, denote the testes of a deer or itag.

DOUCINE, in Architecture, a moulding concave above and convex below, serving commonly as a cymatium to a delicate cornice. It is likewise called GULA.

DOVE. See COLUMBA, ORNITHOLOGY Index.

Dove-Tailing, in carpentry, is the manner of fastening boards together by letting one piece into another

Doubling
||
Dove-Tailing.

Dover.

ther in the form of the tail of a dove. The dove-tail is the strongest of the assemblages or jointings; because the tenon, or piece of wood which is put into the other, goes widening to the extreme, so that it cannot be drawn out again, by reason the extreme or tip is bigger than the hole.

DOVER, a borough and port town of England, in the county of Kent, situated in E. Long. 0. 25. N. Lat. 51. 10. It sends two members to parliament styled *barons of the Cinque ports*, whereof Dover is the chief. Dover gave the title of duke in the Queensberry family, but extinct: now a revived barony in the York family.

By the Romans this town was named *Dubris*, and by the Saxons *Dofra*, probably from the British word *Dour*, which signifies water. The convenience of its situation drew the attention of the Roman governors, who ruled here while they possessed this part of the island; and there still remain indubitable testimonies of their care and respect for this important place. For the defence of the town, the Romans, or, according to some, Arviragus, a British king, their confederate, by cutting out walls with infinite labour in the solid rock, constructed a stony fortress; and, as its venerable remains still prove, erected also a lighthouse for the benefit of navigation. The Saxons, Danes, and Normans, had a very high opinion of this place; and when the barons invited over the young prince, afterwards Louis VIII. of France, his father Philip Augustus conceived a bad opinion of the expedition, because the castle and port of Dover were held for King John, though a great part of the kingdom had submitted to Louis. In its most flourishing state, the fortress was impregnable, and the town a very opulent emporium. It had 21 wards, each of which furnished a ship for the public service, 10 gates, 7 parish-churches, many religious houses, hospitals, and other public edifices. The decay of the town was brought on by that of the harbour. To recover this, Henry VIII. spent no less than 63,000l. in constructing piers; and 5000l. in building a castle between this and Folkestone, called *Sandgate*, where the shore was flat, and the landing easy. Notwithstanding all this expence, however, it was again choked up in the reign of Queen Elizabeth, by whom it was again cleared at a vast expence, so that ships of some hundred tons could enter it. Since that time it has again declined, notwithstanding of many efforts for its relief, and great assistance from time to time given by parliament for this purpose. As the haven, however, is still capable of receiving vessels of small burden; and as the packets to France and Flanders are stationed here in time of peace, it is still a place of some consequence, and the people are active and industrious.

DOVER Straits, the narrow channel between Dover and Calais, which separates our island from the opposite continent. Britain is supposed by many to have been once peninsulated, the present straits occupying the site of the isthmus which joined it to Gaul. "No certain cause (says Mr Pennant*) can be given for the mighty convulsion which tore us from this continent; whether it was rent by an earthquake, or whether it was worn through by the continual dashing of the waters, no Pythagoras is left to solve the *Fortuna locorum*:"

* *Art. Zool.*
vol. i. In-
trod. p. ii.

Dover.

*Vidi ego, quod fuerat quondam solidissima tellus
Esse fretum.*

But it is most probable, that the great philosopher alluded to the partial destruction of the *Atlantica insula*, mentioned by Plato as a distant tradition in his days. It was effected by an earthquake and a deluge, which might have rent asunder the narrow isthmus in question, and left Britain, large as it seems at present, the mere wreck of its original size. The Scilly isles, the Hebrides, Orkneys, Shetlands, and perhaps the Feroe islands, may possibly be no more than fragments of the once far-extended region. I have no quarrel about the word *island*. The little isthmus, compared to the whole, might have been a junction never attended to in the limited navigations of very early times. The peninsula had never been wholly explored, and it passed with the ancients for a genuine island. The correspondency of strata on part of the opposite shores of Britain and France, leaves no room to doubt but that they were once united. The chalky cliffs of Blancnez between Calais and Boulogne, and those to the westward of Dover, exactly tally: the last are vast and continued; the former short, and the termination of the immense bed. Between Boulogne and Folkestone (about six miles from the latter) is another memorial of the junction of the two countries; a narrow submarine hill, called the *Rip-raps*, about a quarter of a mile broad, and ten miles long, extending eastwards towards the Goodwin sands. Its materials are boulderstones, adventitious to many strata. The depth of water on it, in very low ebbs during spring tides, is only fourteen feet. The fishermen from Folkestone have often touched it with a fifteen feet oar; so that it is justly the dread of navigators. Many a tall ship has perished on it, and sunk instantly into twenty-one fathoms water. In July 1782, the *Belleisle* of sixty-four guns struck, and lay on it during three hours; but, by starting her beer and water, got clear off.

"These celebrated straits are only twenty-one miles wide in the narrowest part. From the pier at Dover to that at Calais is twenty-four. It is conjectured, that their breadth lessens, and that they are two miles narrower than they were in ancient times. An accurate observer of fifty years remarks to me, that the increased height of water, from a decrease of breadth, has been apparent even in that space. The depth of the channel at a medium in highest spring tides is about twenty-five fathoms. The bottom either coarse sand or rugged scars, which have for ages unknown resisted the attrition of the currents. From the straits both eastward and westward is a gradual increase of depth through the channel to a hundred fathoms, till soundings are totally lost or unattended to. The spring tides in the straits rise on an average twenty-four feet, the neap tides fifteen. The tide flows from the German sea, passes the straits, and meets, with a great rippling, the western tide from the ocean between Fairleigh near Hastings and Boulogne; a proof that, if the separation of the land was effected by the seas, it must have been by the overpowering weight of those of the north."

DOVER, a town of Delaware in North America. It is the chief town of the county of Kent in the Delaware state, and is the seat of government. It stands on Jones's creek, a few miles from the Delaware river, and consists of about 100 houses, principally of brick. Four streets intersect each other at right angles, in the centre

Douglas. centre of the town, whose incidencies form a spacious parade, on the east side of which is an elegant state-house of brick. The town has a lively appearance, and drives on a considerable trade with Philadelphia. Wheat is the principal article of export. The landing is five or six miles from the town of Dover.

DOUGLAS, LORD. See (*History of*) SCOTLAND.

DOUGLAS, Gavin, bishop of Dunkeld in Scotland, was the third son of Archibald earl of Angus, and born in the year 1474. Where he was educated, is not known; but it is certain that he studied theology: a study, however, which did not estrange him from the muses; for he employed himself at intervals in translating into beautiful verse the poem of Ovid *de Remedio Amoris*. The advantages of foreign travel, and the conversation of the most learned men in France and Germany, to whom his merit procured the readiest access, completed his education. With his superior recommendations and worth it was impossible he could remain unnoticed. His first preferment was to be provost of the collegiate church of St Giles in Edinburgh; a place at that time of great dignity and revenue. In the year 1514, the queen mother, then regent of Scotland, appointed Douglas abbot of Aberbrothock, and soon after archbishop of St Andrew's; but the queen's power not being sufficient to establish him in the possession of that dignity, he relinquished his claim in favour of his competitor Foreman, who was supported by the pope. In 1515, he was by the queen appointed bishop of Dunkeld; and that appointment was soon after confirmed by his holiness Leo X. Nevertheless it was some time before he could obtain peaceable possession of his see. The duke of Albany, who in this year was declared regent, opposed him because he was supported by the queen; and, in order to deprive him of his bishopric, accused him of acting contrary to law in receiving bulls from Rome. On this accusation he was committed to the castle of Edinburgh, where he continued in confinement above a year; but the regent and the queen being at last reconciled, he obtained his liberty, and was consecrated bishop of Dunkeld. In 1517, he attended the duke of Albany to France; but returned soon after to Scotland. In 1521, the disputes between the earls of Arran and Angus having thrown the kingdom into violent commotion, our prelate retired to England, where he became intimately acquainted with Polydore Virgil the historian. He died in London of the plague in 1522; and was buried in the Savoy. He wrote, 1. The palace of Honour: a most ingenious poem under the similitude of a vision; in which he paints the vanity and inconstancy of all worldly glory. It abounds with incidents, and a very rich vein of poetry. The palace of happiness, in the picture of Cebes, seems to be the groundwork of it. 2. *Aureæ Narrationes*: a performance now lost; in which, it is said, he explained, in a most agreeable manner, the mythology of the poetical fictions of the ancients. 3. *Comædiæ aliquot sacræ*: None of which are now to be found. 4. Thirteen Bukes of Eneades, of the famous poet Virgil, translated out of Latin verses into Scottish metre, every buke having its particular prologue. Imprinted at London 1553, in 4to; and reprinted at Edinburgh 1710, in folio. The last is the most esteemed of all his works. He undertook it

at the desire of Lord Henry Sinclair, a munificent patron of arts in those times: and he completed it in 18 months; a circumstance which his admirers are too fond of repeating to his advantage. David Hume of Godscroft, an author of uncommon merit, and an admirable judge of poetry, gives the following testimony in his favour. "He wrote (says he) in his native tongue divers things; but his chiefest work is his translation of Virgil, yet extant, in verse: in which he ties himself so strictly as is possible; and yet it is so well expressed, that whosoever will essay to do the like will find it a hard piece of work to go through with it. In his prologues before every book, where he hath his liberty, he sheweth a natural and ample vein of poetry, so pure, pleasant, and judicious, that I believe there is none that hath written before or since but cometh short of him." It has been said, that he compiled an historical treatise *De Rebus Scotticis*; but no remain of it hath descended to the present times.

DOUGLAS, the principal town of the isle of Man, and which has lately increased both in trade and buildings. The harbour, for ships of a tolerable burden, is the safest in the island, and is much improved by a fine mole that has been built. It is seated on the eastern side. W. Long. 4. 25. N. Lat. 54. 7.

DOUW, GERHARD, a celebrated painter, was born at Leyden in 1613; and received his first instructions in drawing and design from Bartholomew Dolendo an engraver, and also from Peter Kouwhoorn a painter on glass; but at the age of fifteen he became a disciple of Rembrandt. In that famous school he continued for three years; and then found himself qualified to study nature, the most unerring director.

From Rembrandt he learned the true principles of colouring, and obtained a complete knowledge of the chiaro-scuro; but to that knowledge he added a delicacy of pencil, and a patience in working up his colours to the highest degree of neatness, superior to any other master. He therefore was more pleased with those pictures of Rembrandt which were painted in his youth than those by which he was distinguished in his more advanced age; because the first seemed finished with more care and attention, the latter with more boldness, freedom, and negligence, which was quite opposite to the taste of Douw. But although his manner appears so different from that of his master, yet it was to Rembrandt alone that he owed all that excellence in colouring by which he triumphed over all the artists of his own country.

His pictures are usually of a small size, with figures so exquisitely touched, so transparent, so wonderfully delicate, as to excite astonishment as well as pleasure. He designed every object after nature, and with an exactness so singular, that each object appears as perfect as nature itself, in respect to colour, freshness, and force. His general manner of painting portraits, was by the aid of a concave mirror, and sometimes by looking at the object through a frame with many exact squares of fine silk. But the latter custom is disused, as the eye of a good artist seems a more competent rule, though the use of the former is still practised by painters in miniature.

It is almost incredible what vast sums have been given and are given at this day for the pictures of Douw, even in his own country; as also in Italy and every

Douglas,
Douw.

Douw
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Dowager.

polite part of Europe: for he was exceedingly curious in finishing them, and patiently assiduous beyond example. Of that patience Sandrart gives a strong proof in a circumstance which he mentions relative to this artist. He says, that having once, in company with Bamboccio, visited Gerhard Douw, they could not forbear to admire the prodigious neatness of a picture which he was then painting, in which they took particular notice of a broom; and expressing their surprise at the excessive neatness of the finishing that minute object, Douw told them he should spend three days more in working on that broom before he should account it entirely complete. In a family picture of Mrs Spiering, the same author observes, that the lady sat five days for the finishing one of her hands that leaned on an arm chair. For that reason not many would sit to him for their portraits; and he therefore indulged himself mostly in works of fancy, in which he could introduce objects of still life, and employ as much time on them as suited his own inclination. Houbraken testifies, that his great patron Mr Spiering allowed him a thousand guilders a year, and paid beside whatever he demanded for his pictures, and purchased some of them for their weight in silver; but Sandrart, with more probability, assures us, that the thousand guilders a-year were paid to Gerhard, on no other consideration than that the artist should give his benefactor the option of every picture he painted, for which he was immediately to receive the utmost of his demand. This great master died in 1674, aged 61.

Douw appears incontestably to be the most wonderful in his finishing of all the Flemish masters. Every thing that came from his pencil is precious, and his colouring hath exactly the true and the lovely tints of nature; nor do his colours appear tortured, nor is their vigour lessened by his patient pencil; for whatever pains he may have taken, there is no look of labour or stiffness; and his pictures are remarkable, not only for retaining their original lustre, but for having the same beautiful effect at a proper distance as they have when brought to the nearest view.

At Turin are several pictures by Gerhard Douw, wonderfully beautiful; especially one, of a doctor attending a sick woman, and surveying an urinal. The execution of that painting is astonishingly fine, and although the shadows appear a little too dark, the whole has an inexpressible effect. In the gallery at Florence there is a night-piece by candle light, which is exquisitely finished; and in the same apartment, a mountebank attended by a number of figures, which it seems impossible either sufficiently to commend or to describe.

DOULEIA, (*Δουλεια*), among the Athenians, a kind of punishment by which the criminal was reduced into the condition of a slave. It was never inflicted upon any but the *ατιμοι*, sojourners and freed servants.

To DOUSE, in sea language, is to lower suddenly, or slacken; and it is applied to a sail in a squall of wind, an extended hawser, &c.

DOWAGER, *Dotifca* (*q. d.* a widow endowed, or that has a jointure), a title, or addition, applied to the widows of princes, dukes, earls, and persons of high rank only.

Queen DOWAGER, is the widow of the king, and as such enjoys most of the privileges belonging to her as queen consort: but it is not high treason to violate her chastity or conspire her death, because the succession is not endangered thereby; but no man can marry her without special license from the king, on pain of forfeiting his lands and goods. See QUEEN.

DOWER, (*Dotarium, Doarium, or Dos*), a portion of lands or tenements which a widow enjoys for term of life from her husband, in case she survives him; and which, at her death, descends to their children. But she must have been the wife of the party at the time of his decease; or not divorced *à vinculo matrimonii*: nor, if she has eloped from her husband, and lives with an adulterer, shall she be entitled to dower, unless her husband be voluntarily reconciled to her. The widows of traitors are also barred of their dower by 5 and 6 Edw. VI. cap. 11. but not the widows of felons. An alien cannot be endowed, unless she be queen consort. And if a woman levies a fine with her husband, or if a common recovery he had with the husband and wife of the husband's lands, she is barred of her dower.— A widow, clear of these impediments, is by law entitled to be endowed of all lands and tenements, of which her husband was seised in fee-simple or fee-tail at any time during the coverture; and of which any issue she might have had might by possibility have been heir. See JOINTURE.

DOWN, a county of Ireland in the province of Ulster; bounded on the east and south by St George's channel; on the west by the county of Armagh; and on the north by the county of Antrim. It lies opposite to the isle of Man, Cumberland, and Westmorland; and the north part of it fronts the Mull of Galloway in Scotland, and is about 44 miles from it.— It is about 44 miles in length and 30 in breadth. It sends 14 members to parliament, two for the county, and 12 for the following boroughs, Down-Patrick, Newry, Newtown, Killeleagh, Bangor, and Hillsborough.

This county is rough and full of hills, and yet the air is temperate and healthy. The soil naturally produces wood, unless constantly kept open and ploughed; and the low grounds degenerate into bogs and moss, where the drains are neglected. But by the industry of the inhabitants it produces good crops of corn, particularly oats; and, where marl is found, barley. This last is exported from Killogh to Dublin. The staple commodity of this county is the linen manufacture.

Down, or Down-Patrick, a town of Ireland, in the county of Down, is one of the most ancient in that kingdom. It is a market town and a bishopric, said to be erected in the fifth century by St Patrick, but is now united to the see of Connor. Within 200 paces of the town, on the ascent of a hill, are the ruins of an old cathedral, remarkable for the tomb of St Patrick the founder, in which they say the bodies of St Bridget and St Columb are also laid. The town, which is seated on the south corner of Lough Coin, now called the *lake of Strangford*, is adorned with several handsome public buildings. Among the hills, and in many islands, are flights of swans and other water fowl; and the lough abounds with salmon, mullets,

Dowager,
||
Down.

Down
||
Doxology.

lets, and other sea fish. About a mile from this town is St Patrick's well, which many people frequent to drink at some seasons of the year, and others to perform a penance enjoined them by the Popish priests.—The linen manufecture is carried on here, as it is in several places in this county. W. Long. 5. 50. N. Lat. 54. 23.

DOWN, the fine feathers from the breasts of several birds, particularly of the duck kind.—That of the eider duck (see ANAS, N° 17.) is the most valuable. These birds pluck it from their breasts, and line their nests with it. We are told that the quantity of down found in one nest more than filled the crown of a hat, yet weighed no more than three quarters of an ounce. Br. Zool.—Three pounds of this down may be compressed into a space scarce bigger than one's fist; yet is afterwards so dilatible as to fill a quilt five feet square. Salern. Orn. p. 416.—That found in the nests is most valued, and termed *live down*; it is infinitely more elastic than that plucked from the dead bird, which is little esteemed in Iceland. The best sort is sold at 45 fish per pound when cleansed, and at 16 when not cleansed. There are generally exported every year, on the company's account, fifteen hundred or two thousand pounds of both sorts, exclusive of what is privately exported by foreigners. In 1750 the Iceland company sold as much in quantity of this article as amounted to three thousand seven hundred and forty-five banco dollars, besides what was sent directly to Gluckstadt.—*Von Troil*, p. 146.

DOWN, or hair of plants. See HAIR.

DOWNETON, or DUNKTON, a borough town of Wiltshire, five miles south of Salisbury. It sends two members to parliament.

DOWNHAM, a market town of Norfolk, 10 miles south of Lynn, famous for its good butter; there being 1000, and sometimes 2000, firkins bought here every Monday, and sent up the river Ouse to Cambridge, from whence it is conveyed to London in the Cambridge waggons.

DOWNS, a bank or elevation of sand, which the sea gathers and forms along its shores; and which serves it as a barrier. The word is formed from the French *dune*, of the Celtic *dum*, a "mountain." Charles de Visch. in his *Compend. Chronolog. Exord. et Progress. Abbat. Clariss. B. Mariæ, de Dunis*, says, *Vallem reperit arenarum collibus (quos incolæ Duynen vocant) undique cinctam*.

DOWNS are particularly used for a famous road for ships, along the eastern coast of the county of Kent, from Dover to the North Foreland; where both the outward and homeward bound ships frequently make some stay; and squadrons of men of war rendezvous in time of war.

It affords excellent anchorage; and is defended by the castles of Deal, Dover, and Sandwich.

DOWRY, the money or fortune which the wife brings her husband in marriage; it is otherwise called *maritagium*, marriage goods, and differs from dower. See DOWER.

DOXOLOGY, a hymn used in praise of the Almighty, distinguished by the title of *greater* and *lesser*.

The lesser doxology was anciently only a single sentence, without response, running in these words, *Glory*

be to the Father, and to the Son, and to the Holy Ghost, world without end, Amen. Part of the latter clause, *As it was in the beginning, is now, and ever shall be*, was inserted some time after the first composition. Some read this ancient hymn, *Glory be to the Father, and to the Son with the Holy Ghost.* Others, *Glory be to the Father in or by the Son, and by the Holy Ghost.* This difference of expression occasioned no dispute in the church, till the rise of the Arian heresy; but when the followers of Arius began to make use of the latter as a distinguishing character of their party, it was entirely laid aside by the Catholics, and the use of it was enough to bring any one under suspicion of heterodoxy.

The doxology was used at the close of every solemn office. The western church repeated it at the end of every psalm, and the eastern church at the end of the last psalm. Many of their prayers were also concluded with it, particularly the solemn thanksgiving or consecration prayer at the eucharist. It was also the ordinary conclusion of their sermons.

The greater doxology, or angelic hymn, was likewise of great note in the ancient church. It began with these words, which the angels sung at our Saviour's birth, *Glory be to God on high, &c.* It was chiefly used in communion service, and in men's private devotions. Both the doxologies have a place in the church of England, the former being repeated after every psalm, and the latter used in the communion service.

DRABA, a genus of plants belonging to the tetradynamia class; and in the natural method ranking under the 39th order, *Siliquosæ*. See BOTANY Index.

DRABLER, in the sea language, a small sail in a ship, which is the same to a bonnet that a bonnet is to a course, and is only used when the course and bonnet are too shoal to clothe the mast. See BONNET and COURSE.

DRABLING, in *Angling*, is a method of catching barbels. Take a strong line of six yards; which, before you fasten it to your rod, must be put through a piece of lead, that if the fish bite, it may slip to and fro, and that the water may something move it on the ground; bait with a lob worm well secured, and so by its motion the barbel will be enticed into the danger without suspicion. The best places are in running water near piles, or under wooden bridges, supported with oaks floated and slimy.

DRABS, in the salt works, a kind of wooden boxes for holding the salt when taken out of the boiling pan; the bottoms of which are made shelving or inclining forwards, that the briny moisture of the salt may drain off.

DRAC, an imaginary being, much dreaded by the country people in many parts of France. The dracs are supposed to be malicious or at least tricksome demons; but, which is very rare, if one of them happens to take a fancy to a man or woman, they are sure to be the better for it. They are still said to lay gold cups and rings on the surface over pits and rivers, as baits to draw women and children in; though their usual dwelling is some old empty house, whence they make excursions in human form, visible or invisible as best suits their purpose. The country folks shudder at the very name of the drac. Some are positive that they have
seen

Draba
||
Drac.

Dracæna
||
Draconarius.

seen him; for happy indeed is that village in which there is not a house execrated as the lurking place of this tremendous drac.

DRACÆNA, DRAGON-TREE; a genus of plants belonging to the hexandria class. See BOTANY Index.

DRACHM, a Grecian coin, of the value of leventy-pence three farthings. Drachm is also a weight used by our physicians; containing just sixty grains three scruples, or the eighth part of an ounce.

DRACO, a celebrated lawgiver of Athens. When he exercised the office of archon, he made a code of laws for the use of his citizens, which, on account of their severity, were said to be written in letters of blood. By them idleness was punished with as much severity as murder, and death was denounced against the one as well as the other. Such a code of rigorous laws gave occasion to a certain Athenian to ask of the legislator, why he was so severe in his punishments? and Draco gave for answer, that as the smallest transgression had appeared to him deserving death, he could not find any punishment more rigorous for more atrocious crimes. These laws were at first enforced, but they were often neglected on account of their extreme severity; and Solon totally abolished them, except that one which punished a murderer with death. The popularity of Draco was uncommon, but the gratitude of his admirers proved fatal to him. When once he appeared on the theatre, he was received with repeated applause; and the people, according to the custom of the Athenians, showed their respect to their lawgiver by throwing garments upon him. This was done in such profusion, that Draco was soon hid under them, and smothered by the too great veneration of his citizens. He lived about 624 years before the Christian era.

DRACO, the *Dragon*, a genus of reptiles belonging to the class of amphibia. See ERPETOLOGY Index.

DRACO Volans, in *Meteorology*, a fiery exhalation, frequent in marshy and cold countries.

It is most common in summer; and though principally seen playing near the banks of rivers, or in boggy places, yet sometimes mounts up to a considerable height in the air, to the no small terror of the amazed beholders; its appearance being that of an oblong, sometimes roundish, fiery body, with a long tail. It is entirely harmless, frequently sticking to the hands and clothes of people without injuring them in the least.

DRACO, in *Astronomy*, a constellation of the northern hemisphere; whose stars, according to Ptolemy, are 81; according to Tycho, 32; according to Hevelius, 40; according to Bayer, 33; and according to Mr Flamsteed, 80. See ASTRONOMY, N° 406.

DRACOCEPHALUM, DRAGON'S HEAD; a genus of plants belonging to the didynamia class. See BOTANY Index.

DRACONARIUS, in antiquity, DRAGON-BEARER. Several nations, as the Persians, Parthians, Scythians, &c. bore dragons on their standards; whence the standards themselves were called *dracones*, "dragons." The Romans borrowed the same custom from the Parthians; or, as Casaubon has it, from the Daci; or, as Codin, from the Assyrians.

The Roman dracones were figures of dragons painted in red on their flags, as appears from Ammianus

Marcellinus: but among the Persians and Parthians they were like the Roman eagle, figures in full relief; so that the Romans were frequently deceived, and took them for real dragons.

Dracontic
||
Dragon.

The soldier who bore the dragon or standard was called by the Romans *draconarius*; and by the Greeks *δρακοναριος* and *δρακοντιοφορος*; for the emperors carried the custom with them to Constantinople.

DRACONTIC MONTH, the time of the revolution of the moon from her ascending node, called *caput draconis*, to her return thither.

DRACONTIUM, DRAGONS; a genus of plants belonging to the gynandria class; and in the natural method ranking under the first order, *Palmae*. See BOTANY Index.

DRACUNCULI, in *Medicine*, small long worms which breed in the muscular parts of the arms and legs, called *Guinea worms*. The common way of getting out these worms is by the point of a needle; and to prevent their forming there again, the usual custom is to wash the parts with wine or vinegar, with alum, nitre, or common salt, or with a strong lixivium of oak ashes, and afterwards anointing them with an ointment of the common kind used for scorbutic eruptions, with a small mixture of quicksilver.

DRACUNCULUS. See ARUM, BOTANY Index.

DRAFF, a name given in some places to the wash given to hogs, and the grains given to cows.

DRAG, in building. A door is said to *drag* when in opening or shutting it hangs or grates upon the floor.

DRAG, in sea language, is a machine consisting of a sharp, square, iron ring, encircled with a net, and commonly used to take the wheel off from the platform or bottom of the decks.

DRAGOMAN, or DROGMAN, a term of general use through the east for an interpreter, whose office is to facilitate commerce between the orientals and occidentals. These are kept by the ambassadors of Christian nations residing at the Porte for this purpose.

The word is formed from the Arabic *targeman* or *targiman*, of the verb *taragem*, "he has interpreted." From *dragoman* the Italians formed *dragomano* and, with a nearer relation to its Arabic etymology, *turcimmanno*; whence the French and our *trucheman*, as well as *dragoman* and *drogman*.

DRAGON, in *Astronomy*. See DRACO.

DRAGON'S Head and Tail (*caput et cauda draconis*), are the nodes of the planets; or the two points wherein the ecliptic is intersected by the orbits of the planets, and particularly that of the moon; making with it angles of five degrees and eighteen minutes. One of these points looks northward; the moon beginning then to have northward latitude, and the other southward, where she commences south. Thus her deviation from the ecliptic seems (according to the fancy of some) to make a figure like to that of a dragon, whose belly is where she has the greatest latitude; the intersection representing the head and tail, from which resemblance the denomination arises.

But note, that these points abide not always in one place, but have a motion of their own in the zodiac, and retrograde-wise, 3 minutes 11 seconds per day; completing their circle in 18 years 225 days; so that the

Dragon
||
Dragonée.

the moon can be but twice in the ecliptic during her monthly period, but at all other times she will have a latitude or declination from the ecliptic.

It is about these points of intersection that all eclipses happen. They are usually denoted by these characters Ω dragon's head, and Υ dragon's tail.

DRAGON, in *Zoology*. See DRACO.

DRAGON'S BLOOD, a gummi-resinous substance brought from the East Indies, either in oval drops wrapped up in flag leaves, or in large masses composed of smaller tears. It is said to be obtained from the palmijuncus draco, the calamus rotang, the dracæna draco, the pterocarpus draco, and several other vegetables.

The writers on the materia medica in general give the preference to the former, though the others are not unfrequently of equal goodness. The fine dragon's blood of either sort breaks smooth, free from any visible impurities, of a dark red colour, which changes upon being powdered into an elegant bright crimson. Several artificial compositions, coloured with the true dragon's blood, or Brazil wood, are sometimes sold in the room of this commodity. Some of these dissolve like gums in water; others crackle in the fire without proving inflammable; whilst the genuine sanguis draconis readily melts and catches flame, and is not acted on by watery liquors. It totally dissolves in pure spirit, and tinges a large quantity of the menstruum of a deep red colour. It is likewise soluble in expressed oils, and gives them a red hue, less beautiful than that communicated by anchusa. This drug in substance has no sensible smell or taste; when dissolved, it discovers some degree of warmth and pungency. It is usually, but without foundation, looked upon as a gentle astringent; and sometimes directed as such in extemporaneous prescription against seminal gleets, the fluor albus, and other fluxes. In these cases, it is supposed to produce the general effects of resinous bodies, lightly incrassating the fluids and somewhat strengthening the solids. But in the present practice it is very little used either externally or internally.

A solution of dragon's blood in spirit of wine is used for staining marble, to which it gives a red tinge, which penetrates more or less deeply according to the heat of the marble during the time of application. But as it spreads at the same time that it sinks deep, for fine designs the marble should be cold. Mr Du Fay says, that by adding pitch to this solution the colour may be rendered deeper.

DRAGON Fish, or Dragonet. See CALLIONYMUS, *ICHTHYOLOGY Index*.

DRAGON Fly. See LIBELLULA, *ENTOMOLOGY Index*.

DRAGON Shell, in *Natural History*, a name given by some to a species of concamerated patella or limpet. This has a top very much bent; and is of an ash colour on the outside, but of an elegant and bright flesh colour within. This has been found sticking on the back of a tortoise, as the common limpets do on the sides of rocks; and some have been found affixed to large shells of the pinna marina brought from the East Indies at different times.

DRAGONS. See DRACONTIUM, *BOTANY Index*.

DRAGONET, or DRAGON Fish. See CALLIONYMUS, *ICHTHYOLOGY Index*.

DRAGONNE'E, in *Heraldry*. A lion dragonnée

is where the upper half resembles a lion, the other half going off like the hinder part of a dragon. The same may be said of any other beast as well as a lion.

DRAGOON, in military affairs, a musqueteer mounted on horseback, who sometimes fights or marches on foot, as occasion requires.

Menage derives the word *dragoon* from the Latin *draconarius*, which in Vegetius is used to signify *soldier*. But it is more probably derived from the German *tragen* or *dragen*, which signifies *to carry*; as being infantry carried on horseback.

Dragoons are divided into brigades as the cavalry; and each regiment into troops; each troop having a captain, lieutenant, cornet, quarter-master, two sergeants, three corporals, and two drums. Some regiments have hautboys. They are very useful on any expedition that requires despatch; for they can keep pace with the cavalry, and do the duty of infantry; they encamp generally on the wings of the army, or at the passes leading to the camp; and sometimes they are brought to cover the general's quarters: they march in the front and rear of the army.

The first regiment of dragoons raised in England was in 1681, and called the regiment of dragoons of North Britain. In battle or attacks they generally fight sword in hand after the first fire. Their arms are, a sword, firelock, and bayonet. In the French service, when the dragoons march on foot, their officers bear the pike and the sergeants the halbert, neither of which are used in the English service.

DRAGOONING, one of the methods used by Papiists for converting refractory heretics, and bringing them within the pale of the true church.

The following method of dragooning the French Protestants, after the revocation of the edict of Nantz, under Louis XIV. is taken from a French piece, translated in 1686.

The troopers, soldiers, and dragoons, went into the Protestants houses, where they marred and defaced their household stuff, broke their looking glasses, and other utensils and ornaments, let their wine run about their cellars, and threw about their corn and spoiled it. And as to those things which they could not destroy in this manner, such as furniture of beds, linen, wearing apparel, plate, &c. they carried them to the market place, and sold them to the Jesuits and other Roman Catholics. By these means the Protestants in Montauban alone were, in four or five days, stripped of above a million of money. But this was not the worst.

They turned the dining rooms of gentlemen into stables for their horses; and treated the owners of the houses where they quartered with the highest indignity and cruelty, lashing them about from one to another, day and night, without intermission, not suffering them to eat or drink; and when they began to sink under the fatigue and pains they had undergone, they laid them on a bed, and when they thought them somewhat recovered, made them rise, and repeated the same tortures. When they saw the blood and sweat run down their faces and other parts of their bodies, they sluiced them with water, and putting over their heads kettle drums, turned upside down, they made a continual din upon them till these unhappy creatures lost their senses. When one party of these tormentors

Dragoon,
Dragoon-
ing.

Dragoon-
ing.

mentors were weary, they were relieved by another, who practised the same cruelties with fresh vigour.

At Negreplisse, a town near Montauban, they hung up Isaac Favin, a Protestant citizen of that place, by his armpits, and tormented him a whole night by pinching and tearing off his flesh with pincers. They made a great fire round a boy of about 12 years old, who with his hands and eyes lifted up to heaven cried out "My God, help me!" And when they found the youth resolved to die rather than renounce his religion, they snatched him from the fire just as he was on the point of being burnt.

In several places the soldiers applied red hot irons to the hands and feet of men and breasts of women. At Nantz they hung up several women and maids by their feet, and others by their armpits, and thus exposed them to public view stark naked. They bound to posts mothers that gave suck, and let their sucking infants lie languishing in their sight for several days and nights, crying, mourning, and gasping for life. Some they bound before a great fire, and being half roasted, let them go: a punishment worse than death. Amidst a thousand hideous cries and a thousand blasphemies, they hung up men and women by the hair, and some by their feet, on hooks in chimneys, and smoked them with wisps of wet hay till they were suffocated. They tied some under the arms with ropes, and plunged them again and again into wells; they bound others like criminals, put them to the torture, and with a funnel filled them with wine till the fumes of it took away their reason, when they made them say, they consented to be Catholics. They stripped them naked, and after a thousand indignities, stuck them with pins and needles from head to foot. They cut and slashed them with knives; and sometimes with red hot pincers took hold of them by the nose and other parts of the body, and dragged them about the rooms till they made them promise to be Catholics, or till the cries of these miserable wretches, calling upon God for help, forced them to let them go. They beat them with staves, and thus bruised, and with broken bones, dragged them to church, where their forced presence was taken for an abjuration. In some places they tied fathers and husbands to their bed-posts, and before their eyes ravished their wives and daughters with impunity. They blew up men and women with bellows till they burst them. If any to escape these barbarities endeavoured to save themselves by flight, they pursued them into the fields and woods, where they shot at them like wild beasts, and prohibited them from departing the kingdom (a cruelty never practised by Nero or Dioclesian) upon pain of confiscation of effects, the galleys, the lash, and perpetual imprisonment; inasmuch that the prisons of the sea-port towns were crammed with men, women, and children, who endeavoured to save themselves by flight from their dreadful persecution. With these scenes of desolation and horror, the Popish clergy feasted their eyes, and made them only a matter of laughter and sport.

Though my heart aches (says the writer of the piece from which we are transcribing) whilst I am relating these barbarities, yet for a perpetual memorial of the infernal cruelty practised by these monsters I beg the reader's patience to lay before him two other in-

stances, which, if he hath a heart like mine, he will not be able to read without watering these sheets with his tears.

Dragoon-
ing,
Drags.

"The first is of a young woman, who being brought before the council, upon refusing to abjure her religion, was ordered to prison. There they shaved her head, singed off the hair from other parts of her body; and having stripped her stark naked, led her through the streets of the city, where many a blow was given her, and stones flung at her; then they set her up to the neck in a tub full of water, where, after she had been for a while, they took her out, and put on her a shift dipt in wine, which, as it dried and stuck to her sore and bruised body, they snatched off again, and then had another ready dipped in wine to clap on her. This they repeated six times, thereby making her body exceeding raw and sore. When all these cruelties could not shake her constancy, they fastened her by her feet in a kind of gibbet, and let her hang in that posture, with her head downward, till she expired.

"The other is of a man in whose house were quartered some of these missionary dragoons. One day, having drank plentifully of his wine, and broken their glasses at every health, they filled the floor with the fragments, and by often walking over them reduced them to very small pieces. This done, in the insolence of their mirth, they resolved on a dance, and told their Protestant host that he must be one of their company; but as he would not be of their religion, he must dance quite barefoot; and thus barefoot they drove him about the room, treading on the sharp points of the broken glasses. When he was no longer able to stand, they laid him on a bed, and, in a short time, stripped him stark naked, and rolled him from one end of the room to the other, till every part of his body was full of the fragments of glass. After this they dragged him to his bed, and having sent for a surgeon, obliged him to cut out the pieces of glass with his instruments, thereby putting him to the most exquisite and horrible pains that can possibly be conceived.

"These, fellow Protestants, were the methods used by the most Christian king's apostolic dragoons to convert his heretical subjects to the Roman Catholic faith! These, and many other of the like nature, were the torments to which Louis XIV. delivered them over to bring them to his own church! and as Popery is unchangeably the same, these are the tortures prepared for you, if ever that religion should be permitted to become settled amongst you; the consideration of which made Luther say of it, what every man that knows any thing of Christianity must agree with him in, 'If you had no other reason to go out of the Roman church, this alone would suffice, that you see and hear, how contrary to the law of God, they shed innocent blood. This single circumstance shall, God willing, ever separate me from the Papacy. And if I was now subject to it, and could blame nothing in any of their doctrines; yet for this crime of cruelty, I would fly from her communion, as from a den of thieves and murderers.'

DRAGS, in the sea language, are whatever hangs over the ship in the sea, as shirts, coats, or the like; and boats, when towed, or whatever else that after this

Drain
||
Drake.

this manner may hinder the ship's way when she sails, are called *drags*.

DRAIN, a cut, or ditch for carrying off water from the soil, to improve it for the purposes of agriculture. In the fen countries of England drains are 20, 30, and sometimes 40 feet wide, carried through the marshy ground to some river or other place capable of discharging the water which they carry out of the fen lands.

DRAINING. For the different methods, see **AGRICULTURE Index**.

DRAKE, the male of the duck kind. See **ANAS, ORNITHOLOGY Index**.

DRAKE, *Sir Francis*, a celebrated English admiral, was the son of Edmund Drake a sailor, and born near Tavistock in Devonshire, in the year 1545. He was brought up at the expence, and under the care of, Sir John Hawkins, who was his kinsman; and, at the age of 18, was purser of a ship trading to Biscay. At 20, he made a voyage to Guinea; and, at 22, had the honour to be made captain of the *Judith*. In that capacity he was in the harbour of St John de Ulloa, in the gulf of Mexico, where he behaved most gallantly in the glorious actions under Sir John Hawkins, and returned with him to England with great reputation, though not worth a groat. Upon this he projected a design against the Spaniards in the West Indies; which he no sooner published, than he had volunteers enough ready to accompany him. In 1570, he made his first expedition with two ships; and the next year with one only, in which he returned safe, if not with such advantages as he expected. He made another expedition in 1572, wherein he did the Spaniards some mischief, and gained considerable booties. In these expeditions he was much assisted by a nation of Indians, who then were, and have been ever since, engaged in perpetual wars with the Spaniards. The prince of these people was named *Pedro*; to whom Drake presented a fine cutlafs from his side, which he saw the Indian greatly admired. *Pedro*, in return, gave him four large wedges of gold; which Drake threw into the common stock, saying, That he thought it but just that such as bore the charge of so uncertain a voyage on his credit, should share the utmost advantage that voyage produced. Then, embarking his men with all the wealth he had obtained, which was very considerable, he bore away for England, where he arrived in August 1573.

His success in this expedition, joined to his honourable behaviour towards his owners, gained him a high reputation; and the use he made of his riches, a still greater. For, fitting out three stout frigates at his own expence, he sailed with them to Ireland; where, under Walter earl of Essex, the father of the famous unfortunate earl, he served as a volunteer, and did many glorious actions. After the death of his noble patron, he returned into England; where Sir Christopher Hatton introduced him to her majesty, and procured him countenance and protection at court. By this means he acquired a capacity of undertaking that grand expedition which will render his name immortal. The first thing he proposed was a voyage into the South seas through the straits of Magellan; which was what hitherto no Englishman had ever attempted. The project was well received at court: the queen furnished

VOL. VII. Part I.

him with means; and his own fame quickly drew together a sufficient force. The fleet with which he sailed on this extraordinary undertaking, consisted only of five vessels, small when compared with modern ships, and no more than 164 able men. He sailed on the 13th of December 1577; on the 25th fell in with the coast of Barbary, and on the 29th with Cape Verd. On the 13th of March he passed the equinoctial, made the coast of Brazil on the 5th of April, and entered the river de la Plata, where he lost the company of two of his ships; but meeting them again, and taking out their provisions, he turned them adrift. On the 29th of May he entered the port of St Julian's, where he continued two months for the sake of laying in provisions: on the 20th of August he entered the straits of Magellan, and on the 25th of September passed them, having then only his own ship. On the 25th of November he came to Macao, which he had appointed for a place of rendezvous in case his ships separated; but Captain Winter, his vice-admiral, having repassed the straits, was returned to England. Thence he continued his voyage along the coast of Chili and Peru, taking all opportunities of seizing Spanish ships, and attacking them on shore, till his men were sated with plunder; and then, coasting America to the height of 48 degrees, he endeavoured to find a passage that way back into our seas, but could not. However, he landed, and called the country *New Albion*, taking possession of it in the name and for the use of Queen Elizabeth; and, having careened his ship, set sail from thence on the 29th of September 1579, for the Moluccas. He is supposed to have chosen this passage round, partly to avoid being attacked by the Spaniards at a disadvantage, and partly from the lateness of the season, whence dangerous storms and hurricanes were apprehended. On the 13th of October he fell in with certain islands inhabited by the most barbarous people he had met with in all his voyage: on the 4th of November he had sight of the Moluccas; and, coming to Ternate, was extremely well received by the king thereof, who appears from the most authentic relations of this voyage to have been a wife and politic prince. On the 10th of December he made Celebes; where his ship unfortunately ran upon a rock, the 9th of January following; from which, beyond all expectation, and in a manner miraculously, they got off, and continued their course. On the 16th of March he arrived at Java Major; and from thence he intended to have directed his course to Malacca; but found himself obliged to alter his purpose, and to think of returning home. On the 25th of March 1580, he put this design in execution; and on the 15th of June he doubled the Cape of Good Hope, having then on board 57 men, and but three casks of water. On the 12th of July he passed the line, reached the coast of Guinea on the 16th, and there watered. On the 11th of September he made the island of Tercera; and on the 3d of November entered the harbour of Plymouth. This voyage round the world was performed in two years and about ten months. Shortly after his arrival, the queen going to Deptford went on board his ship; where, after dinner, she conferred on him the order of knighthood, and declared her absolute approbation of all he had done. She likewise gave directions for the preservation of his ship, that it might remain a monument of his own and his

Drake.

R r

country's

Drake.

country's glory. This celebrated ship, which had been contemplated many years at Deptford, at length decaying, it was broke up, and a chair, made out of the planks, was presented to the university of Oxford; upon which the famous Abraham Cowley made the following verses:

To this great ship, which round the world has run,
And match'd in race the chariot of the sun:
This Pythagorean ship (for it may claim,
Without presumption, so deserv'd a name,
By knowledge once, and transformation now)
In her new shape this sacred port allow.
Drake and his ship could not have with'd, from fate,
An happier station, or more blest'd estate:
For, lo! a seat of endless rest is given,
To her in Oxford, and to him in heaven.

Works, Vol. II.

In the year 1585, he sailed with a fleet to the West Indies, and took the cities of St Jago, St Domingo, Carthagena, and St Augustine. In 1587, he went to Lisbon with a fleet of 30 sail; and having intelligence of a great fleet assembled in the bay of Cadiz, which was to have made part of the armada, he with great courage entered that port, and burnt there upwards of 10,000 tons of shipping: which he afterwards merrily called *burning the king of Spain's beard*. In 1588, when the armada from Spain was approaching our coasts, Sir Francis Drake was appointed vice-admiral under Charles Lord Howard of Effingham, high admiral of England, where fortune favoured him as remarkably as ever: for he made prize of a very large galleon, commanded by Don Pedro de Valdez, who was reputed the projector of this invasion. This affair happened in the following manner: On the 22d of July, Sir Francis observing a great Spanish ship floating at a distance from both fleets, sent his pinnace to summon the commander to yield. Valdez replied, with much Spanish solemnity, that they were 450 strong; that he himself was Don Pedro, and stood much upon his honour; and thereupon propounded several conditions, upon which he was willing to yield. But the vice-admiral replied, That he had no leisure to parley; but if he thought fit instantly to yield, he might; if not, he should soon find that Drake was no coward. Pedro, hearing the name of Drake, immediately yielded, and with 46 of his attendants came on board Drake's ship. This Don Pedro remained about two years Sir Francis Drake's prisoner in England; and, when he was released, paid him for his own and his captain's liberties a ransom of 3500l. Drake's soldiers were well recompensed with the plunder of this ship; for they found in it 55,000 ducats of gold, which were divided among them.

A little before this formidable Spanish armament put to sea, the ambassador of his Catholic majesty had the confidence to propound to Queen Elizabeth, in Latin verse, the terms upon which she might hope for peace; which, with an English translation by Dr Fuller, we will insert in this place, because Drake's expedition to the West Indies makes a part of this message. The verses are these:

*Te voto ne pergas bello defendere Belgas;
Quæ Dracus eripuit nunc restituantur oportet:*

*Quas pater evertit jubeo te condere cellas:
Religio Papæ fac restituantur ad unguem.*

Drake,
Draken-
broch.

These to you are our commands,
Send no help to th' Netherlands:
Of the treasure took by Drake,
Restitution you must make:
And those abbeys build anew,
Which your father overthrew:
If for any peace you hope,
In all points restore the pope.

The queen's extempore return:

Ad Græcas, bone rex, fiant mandata kalendas.
Worthy king, know, this your will
At Latter Lammas we'll fulfil.

In the year 1589, Sir Francis Drake commanded as admiral the fleet sent to restore Don Antonio king of Portugal, the command of the land forces being given to Sir John Norris: but they were hardly got to sea, before the commanders differed, and so the attempt proved abortive. The war with Spain continuing, a more effectual expedition was undertaken by Sir John Hawkins and Sir Francis Drake, against their settlements in the West Indies, than had hitherto been made during the whole course of it: but the commanders here again not agreeing about the plan, this also did not turn out so successfully as was expected. All difficulties, before these two last expeditions, had given way to the skill and fortune of Sir Francis Drake; which probably was the reason why he did not bear these disappointments so well as he otherwise would have done. A strong sense of them is supposed to have thrown him into a melancholy, which occasioned a bloody flux; and of this he died on board his own ship, near the town of Nombre de Dios in the West Indies, on the 28th of January 1595-6. His death was lamented by the whole nation, and particularly by his countrymen; who had great reason to love him from the circumstance of his private life, as well as to esteem him in his public character. He was elected burges for the town of Boffiny, alias Tintagal, in the county of Cornwall, in the 27th parliament of Queen Elizabeth; and for Plymouth in Devonshire, in the 35th of the same reign. This town had very particular obligations to him: for, in the year 1587, he undertook to bring water into it, through the want of which, till then, it had been grievously distressed; and he performed it by conducting thither a stream from springs at eight miles distance, that is to say, in a straight line: for in the manner he brought it, the course of it runs upwards of 20 miles.

DRAKENBORCH, ARNOLD, doctor of laws. This celebrated literary character was a native of Utrecht, and was born on the 1st of January 1684, and in which city he was afterwards professor of rhetoric and history. Grævius and Burmann taught him the belles lettres, and Cornelius Van Eck was his preceptor while he devoted his attention to the law. He succeeded Professor Burmann in the year 1716, and terminated his mortal career in 1748, in the 64th year of his age. He was an author of very considerable eminence, as the following publications sufficiently evince. His dissertation entitled, *Disputatio Philolog. Hist.*

Drama
||
Dran.

Hist. de præfectis urbis, in 4to, proves him to have been an able philologist, and gave flattering indications of future eminence. Its intrinsic merit caused it to be reprinted at Frankfort-on-the-Oder, in 1750, by Professor Uhl, accompanied with a life of its learned author. His next work, entitled *Disputatio de officio præfectorum prætorio*, was published in the year 1707; and ten years after his *C. Siliii Italici Punicorum*, in 17 books, to render which perfect and complete, nothing was omitted by this great man; many historical subjects being engraved for the purpose of elucidating the text, to which his own copious and learned annotations most powerfully contributed. His splendid edition of Livy, with a life of that eminent historian, will render his name immortal. It is entitled *T. Livii Patavini historiarum ab urbe condita libri, qui supersunt, omnes*. Lugd. Batav. 1738 and 1746; 7 tom. The preface to this work is very long, and replete with erudition, giving a particular account of all the literary characters who have at different periods commented on the works of Livy. He took the edition of Gronovius for his model, as being in his estimation the most correct; but he made many important alterations on the authority of manuscripts which it is probable Gronovius had either never seen, or not taken the pains to consult. Upon the whole, this edition of Livy is at once the most elaborate, interesting, and instructive, ever given to the world, since into it he has introduced the criticisms of Duchier, Gronovius, Perizonius, and Sigonius, in addition to his own, which are certainly fraught with much literature and deep discernment.

DRAMA, a poem containing some certain action, and representing a true picture of human life, for the delight and improvement of mankind.

The principal species of the drama are two, comedy and tragedy. Some others there are of less note, as pastoral, satire, tragi-comedy, opera, &c. See the article **POETRY**.

DRAMATIC, an epithet given to pieces written for the stage. See **POETRY**.

DRAN, HENRY FRANCIS LE, a French surgeon of distinguished eminence, was born in the year 1685. His father followed the same profession at Paris, and was highly celebrated for his treatment of cancers. Dran had much experience as well as abilities, although his anatomical knowledge was rather circumscribed, and his acquaintance with books was far from being extensive. In 1730, he published in 8vo a valuable work, entitled *Parallele des différentes Manières de tirer la Pierre hors de la Vessie*. In this work he takes a comparative view of the different modes of performing the hazardous operation of lithotomy, preferring the lateral method which was practised by Cheselden. In the year 1731, he published his *Observations de Chirurgie, avec des Reflexions*, in 2 vols 12mo, which is justly considered as a valuable performance for men who are employed in the practice of surgery. In 1757, appeared his *Traité ou Reflexions tirées de la Pratique sur les Playes d'Armes à Feu*; in which he gives the results of his own practice while in the army, with efficacious methods for the cure of gun-shot wounds. Gataker translated into English his *Traité des opérations de Chirurgie*, to which many interesting ob-

servations were added by Cheselden. In 1765, were published his *Consultations sur la plupart des Maladies qui sont du Ressort de la Chirurgie*; the plan of which is admirably calculated for the instruction of young practitioners. As at least one evidence of the merit of Dran's works, translations of them have been made into various languages. If his judgment was penetrating, he was equally famed for his successful operations. He died at Paris in the year 1770, in the 85th year of his age.

DKANK, among farmers, a term used to denote wild oats, which never fail to infest worn-out lands; so that, when ploughed lands run to these weeds and thistles, the farmer knows it is high time to fallow them, or else to sow them with hay seed, and make pasture of them.

DRAPER, in *Sculpture* and *Painting*, signifies the representation of the clothing of human figures, and also hangings, tapestry, curtains, and most other things that are not carnations or landscapes. See **PAINTING**, **CRAYON**, **DRAWING**, and **MINIATURE**.

DRASTIC, in *Physic*, an epithet bestowed on such medicines as are of present efficacy, and potent in operation; and is commonly applied to emetics and cathartics.

DRAVE, a large navigable river, which, taking its rise in the archbishopric of Saltzburgh, in Germany, runs south-east through Stiria; and continuing its course, divides Hungary from Sclavonia, and falls into the Danube at Esseck.

DRAUGHT, in *Medicine*. See **POTION**.

DRAUGHT, in trade, called also *cloff* or *clouch*, is a small allowance on weighable goods, made by the king to the importer, or by the seller to the buyer, that the weight may hold out when the goods are weighed again.

The king allows 1lb draught for goods weighing no less than 1cwt. 2lb for goods weighing between 1 and 2 cwt. 3lb for goods weighing between 2 and 3 cwt. 4lb from 3 to 10 cwt. 7lb from 10 to 18 cwt. 9lb from 18 to 30 or upwards.

DRAUGHT is also used sometimes for a bill of exchange, and commonly for an order for the payment of any sum of money due, &c. Then the person who gives the order, is said to draw upon the other.

DRAUGHT, or, as it is pronounced, *Draft*, in *Architecture*, the figure of an intended building described on paper; wherein are laid down, by scale and compass, the several divisions and partitions of the apartments, rooms, doors, passages, conveniences, &c. in their due proportion.

It is usual, and exceedingly convenient, before a building is begun to be raised, to have draughts of the ichnography, or ground-plot of each floor or story: as also of the form and fashion of each front, with the windows, doors, ornaments, &c. in an orthography, or upright. Sometimes the several fronts, &c. are taken, and represented in the same draught, to show the effect of the whole building: this is called a *scenography*, or *perspective*.

DRAUGHT, the depth of a body of water necessary to float a ship: hence a ship is said to draw so many feet of water, when she is borne up by a column of water of that particular depth. Thus, if it requires a

Drank
||
Draught.

Draught,
Drawback.

body of water whose depth is equal to 12 feet, to float or buoy up a ship on its surface, she is said to draw 12 feet water; and that this draught may be more readily known, the feet are marked on the stem and stern post, regularly from the keel upwards.

DRAUGHT-Hooks, are large hooks of iron, fixed on the cheeks of a cannon carriage, two on each side, one near the trunnion-hole, and the other at the train, distinguished by the name of *fore* and *hind draught-hooks*. Large guns have draught hooks near the middle trunnion, to which are fixed the chains that serve to keep the shafts of the limbers on a march. The fore and hind hooks are used for drawing a gun backwards or forwards, by men with strong ropes, called *draught-ropes*, fixed to these hooks.

DRAUGHT-Horse, in farming, a sort of coarse-made horse, destined for the service of a cart or plough.

DRAWBACK, in commerce, certain duties, either of the customs or of the excise, allowed upon the exportation of some of our own manufactures; or upon certain foreign merchandises, that have paid duty on importation.

The oaths of the merchants importing and exporting are required to obtain the drawback on foreign goods, affirming the truth of the officers certificate on the entry, and the due payment of the duties: and these may be made by the agent or husband of any corporation or company; or by the known servant of any merchant usually employed in making his entries, and paying his customs. In regard to foreign goods entered outward, if less quantity or value be fraudulently shipped out than what is expressed in the exporter's certificate, the goods therein mentioned, or their value, are forfeited, and no drawback to be allowed for the same. Foreign goods exported by certificate in order to obtain the drawback, not shipped or exported, or re-landed in Great Britain, unless in case of distress to save them from perishing, are to lose the benefit of the drawback, and are forfeited, or their value, with the vessel, horses, carriages, &c. employed in the re-landing thereof; and the persons employed in the re-landing them, or by whose privity they are re-landed, or into whose hands they shall knowingly come, are to forfeit double the amount of the drawback. Officers of the customs conniving at, or assisting in any fraud relating to certificate goods, besides other penalties, are

to forfeit their office, and suffer six months imprisonment without bail or mainprize; as are also masters, or persons belonging to the ships employed therein. Bonds given for the exportation of certificate goods to Ireland must not be delivered up, nor drawback allowed for any goods, till a certificate under the hands and seals of the collector or comptroller, &c. of the customs be produced, testifying the landing.

DRAW-Bridge, a bridge made after the manner of a float, to draw up or let down, as occasions serve, before the gate of a town or castle. See **BRIDGE**.

A draw-bridge may be made after several different ways; but the most common are made with plyers, twice the length of the gate, and a foot in diameter. The inner square is traversed with a cross, which serves for a counterpoise; and the chains which hang from the extremities of the plyers to lift up or let down the bridge are of iron or brass.

In navigable rivers it is sometimes necessary to make the middle arch of bridges with two moveable platforms, to be raised occasionally, in order to let the masts and rigging of ships pass through. This kind of draw-bridge is represented in Plate CLXVIII. where AB is the width of the middle arch; AL and BL, the two piers that support the draw-bridge NO, one of the platforms of which is raised, and the other let down, having the beam PQ for its pleyer. To NO are suspended two moveable braces EH, EH; which resting on the support E, press against the bracket M, and thereby strengthen the draw-bridge. These braces are conducted to the rest by means of the weight S, pulling the chain SLF.

DRAW-Net, a kind of net for taking the larger sort of wildfowl, which ought to be made of the best sort of packthread, with wide meshes; they should be about two fathoms deep and six long, verged on each side with a very strong cord, and stretched at each end on long poles. It should be spread smooth and flat upon the ground; and strewed over with grass, sedge, or the like to hide it from the fowl; and the sportsman is to place himself in some shelter of grass, fern, or some such thing.

DRAWING, in general, denotes the action of pulling out, or hauling along; thus we read of tooth-drawing, wire-drawing, &c.

Draw-
Bridge
||
Drawing.

D R A W I N G,

THE art of representing the appearances of objects upon a plane surface, by means of lines, shades, and shadows, formed with certain materials adapted to the purpose.

§ I. *Of the proper Materials for Drawing, and the manner of using them.*

The first thing necessary for a beginner is to furnish himself with proper materials, such as black lead pencils, crayons of black, white, or red chalk, crow-

quill pens, a rule and compasses, camels hair pencils, and Indian ink. He must accustom himself to hold the pencil farther from the point than one does a pen in writing; which will give him a better command of it, and contribute to render the strokes more free and bold. The use of the pencil is to draw the first sketches or outlines of the piece, as any stroke or line that is amiss may in this be more easily rubbed out than in any other thing; and when he has made the sketch as correct as he can with the pencil, he may then draw carefully the best outline he has got, with his

his crow-quill pen and ink (A); after which he may discharge the pencil lines, by rubbing the piece gently with the crumb of stale bread or India rubber. Having thus got the outline clear, his next work is to shade the piece properly, either by drawing fine strokes with his pen where it requires to be shaded, or by washing it with his pencil and the Indian ink. As to his rule and compasses, they are never or very rarely to be used, except in measuring the proportions of figures after he has drawn them, to prove whether they are right or not; or in houses, fortifications, and other pieces of architecture.

§ 2. *Of drawing Lines, Squares, Circles, and other regular and irregular Figures.*

Having got all these implements in readiness, the first practice must be to draw straight and curve lines, with ease and freedom, upwards and downwards, sideways to the right or left, or in any direction whatsoever. He must also learn to draw, by command of hand, squares, circles, ovals, and other geometrical figures: for, as the alphabet, or a knowledge of the letters, is an introduction to grammar; so is geometry to drawing. The practice of drawing these simple figures till he is master of them, will enable him to imitate, with greater ease and accuracy, many things both in nature and art. And here it is proper to admonish him, never to be in a hurry; but to make himself perfectly master of one figure before he proceeds to another: the advantage, and even necessity, of this, will appear as he proceeds. Two observations more may be added: 1. That he accustom himself to draw all his figures very large, which is the only way of acquiring a free bold manner of designing. 2. That he practise drawing till he has gained a tolerable mastery of his pencil, before he attempts to shadow any figure or object of any kind whatever.

§ 3. *Of Drawing Eyes, Ears, Legs, Arms, Hands, Feet, &c.*

As to the drawing of eyes and ears, legs and arms, the learner will have very little more to do than to copy carefully the examples given in Plate CLXXVII. and CLXXVIII. taken from Sebastian le Clerc's drawing book. But the actions and postures of the hands are so many and various, that no certain rules can be given for drawing them, that will universally hold good. Yet as the hands and feet are difficult members to draw, it is very necessary, and well worth while, to bestow some time and pains about them, carefully imitating their various postures and actions, so as not only to avoid all lameness and imperfection, but also to give them life and spirit. To arrive at this, great care, study, and practice, are requisite; particularly in imitating the best prints or drawings that can be got of hands and feet (some good examples of which are given in Plate CLXXVIII.); for, as to the mechanical rules of drawing them by lines and measures, they

are not only perplexed and difficult, but also contrary to the practice of the best masters. One general rule, however, may be given (which is universally to be observed in all subjects,) and that is, Not to finish perfectly at first any single part, but to sketch out faintly, and with light strokes of the pencil, the shape and proportion of the whole hand, with the action and turn of it; and after considering carefully whether this first sketch be perfect, and altering it wherever it is amiss, you may then proceed to the bending of the joints, the knuckles, the veins, and other small particulars, which, when the learner has got the whole shape and proportion of the hand or foot, will not only be more easily but also more perfectly designed.

§ 4. *Of Drawing Faces.*

The head is usually divided into four equal parts, (1.) From the crown of the head to the top of the forehead. (2.) From the top of the forehead to the eyebrows. (3.) From the eyebrows to the bottom of the nose. (4.) From thence to the bottom of the chin. But this proportion is not constant; those features in different men being often very different as to length and shape. In a well-proportioned face, however, they are nearly right. To direct the learner therefore in forming a perfect face, his first business is to draw an oval, or rather the form of an egg; in the middle of which, from the top to the bottom, draw a perpendicular line. Through the centre or middle of this line draw a diameter line, directly across from one side to the other of your oval. On these two lines all the features of your face are to be placed as follows: Divide your perpendicular line into four equal parts; the first must be allotted to the hair of the head; the second is from the top of the forehead to the top of the nose between the eyebrows; the third is from thence to the bottom of the nose; and the fourth includes the lips and chin. Your diameter line, or the breadth of the face, is always supposed to be the length of five eyes; you must therefore divide it into five equal parts, and place the eyes upon it so as to leave exactly the length of one eye betwixt them. This is to be understood only of a full front face, Plate CLXXVII. fig. *a*; for if it turn to either side, then the distances are to be lessened on that side which turns from you, less or more in proportion to its turning (fig. *b b b.*). The top of the ear is to rise parallel to the eyebrows, at the end of the diameter line; and the bottom of it must be equal to the bottom of the nose. The nostrils ought not to come out farther than the corner of the eye in any face; and the middle of the mouth must always be placed upon the perpendicular line.

§ 5. *Of Drawing Human Figures.*

When the learner is tolerably perfect in drawing faces, heads, hands, and feet, he may next attempt to draw the human figure at length. In order to which, let him first sketch the head; then draw a perpendicular

(A) The ink made use of for this purpose must not be common, but Indian ink; which is much softer than the other, and does not run: by mixing it with water, it may be made to any degree of strength, and used in a pen like common ink.

lar line from the bottom of the head seven times its length (for the length of the head is about one-eighth part of the length of the figure).

The best proportioned figures of the ancients are 7½ heads in height. If, therefore, the figure stands upright, (as fig. a, Plate CLXXIX.) draw a perpendicular line from the top of the head to the heel, which must be divided into two equal parts. The bottom of the belly is exactly the centre. Divide the lower part into two equal parts again, the middle of which is the middle of the knee. For the upper part of the figure, the method must be varied. Take off with your compasses the length of the face (which is three parts in four of the length of the head); from the throat pit to the pit of the stomach is one face, from thence to the navel is another, and from thence to the lower rim of the belly is a third. The line must be divided into seven equal parts. Against the end of the first division, place the breasts; the second comes down to the navel; the third to the privities; the fourth to the middle of the thigh; the fifth to the lower part of the knee; the sixth to the lower part of the calf; and the seventh to the bottom of the heel, the heel of the bearing leg being always exactly under the pit of the throat. But as the essence of all drawing consists in making at first a good sketch, the learner must in this particular be very careful and accurate; he ought to draw no one part perfect or exact till he see whether the whole draught be good; and when he has altered that to his mind, he may then finish one part after another as cursorily as he can.

There are some who, having a statue to copy, begin with the head, which they finish, and then proceed in the same manner to the other parts of the body, finishing as they go: but this method generally succeeds ill; for if they make the head in the least too big or too little, the consequence is a disproportion between all the parts, occasioned by their not having sketched the whole proportionably at first. Let the learner remember, therefore, in whatever he intends to draw, first to sketch its several parts, measuring the distances and proportions between each with his finger or pencil, without using the compasses; and then judge of them by the eye, which by degrees will be able to judge of truth and proportion, and will become his best and principal guide. And let him observe, as a general rule, always to begin with the right side of the piece he is copying: for by that means he will always have what he has done before his eyes; and the rest will follow more naturally, and with greater ease; whereas if he begin with the left side, his hand and arm will cover what he does first, and deprive him of the sight of it; by which means he will not be able to proceed with so much ease, pleasure, or certainty.

As to the order and manner of proceeding in drawing the human body, he must first sketch the head; then the shoulders in the exact breadth; then draw the trunk of the body, beginning with the armpits (leaving the arms till afterwards), and so draw down to the hips on both sides; and be sure he observe the exact breadth of the waist. When he has done this, let him then draw that leg which the body stands upon; and afterwards the other which stands loose; then the arms; and last of all the hands.

He must take notice also of the bowings and bendings that are in the body; making the part which is opposite to that which bends correspond to it in bending with it. For instance: If one side of the body bend in, the other must stand out answerable to it; if the back bend in, the belly must stick out; if the knee bend out, the ham must fall in; and so of any other joint in the body. Finally, He must endeavour to form all the parts of the figure with truth, and in just proportion: not one arm or one leg bigger or less than the other; not broad Herculean shoulders, with a thin and slender waist; nor raw and bony arms, with thick and gouty legs: but let there be a kind of harmonious agreement amongst the members, and a beautiful symmetry throughout the whole figure.

Proportions and Measures of the Human Body. The centre or middle part, between the two extremes of the head and feet of a new born child, is in the navel, but that of an adult is in the os pubis; and the practice of dividing the measures of children into four, five, or six parts, whereof the head is one, is made use of by painters and sculptors.

A child of two years old has about five heads in its whole length, but one of four or five years old has near six; about the fifteenth or sixteenth year, seven heads are the proportion or measure, and the centre inclines to the upper part of the pubis. Hence it appears, as the growth of the body advances, there is a gradual approach to the proportion of an adult of near eight heads in the whole length, of which, as mentioned above, the head makes one.

Agreeable to these principles, the following Table is constructed, exhibiting the proportions of the parts of a man and of a woman, as they were fixed by the ancients, and measured by M. Audran from the Apollo Pythius (Plate CLXXX.) in the garden of the Vatican at Rome, and the Venus Aphrodites (Plate CLXXXI.) belonging to the family of the Medicis. Supposing the figures to stand upright and duly poised on both legs, the whole height of the former is divided into 37½ parts, being 7 heads 3 parts and 6 minutes; and that of the latter into 31 parts, being 7 heads and 3 parts.

LENGTH of the HEAD and TRUNK of the Body.

	Apollo.			Venus.		
	Hds.	Pts.	Min.	Hds.	Pts.	Min.
From the top of the head to the bottom of the chin	4			4		
the bottom of the chin to the top of the sternum or breast-bone	0	1	7	0	1	8
the top of the sternum to the pit of the stomach	0	3	10	0	3	6
the pit of the stomach to the navel	0	2	10	0	2	7
the navel to the pubis	0	3	6	0	3	9
Length of the head and trunk of the body	3	3	9	3	3	6

D R A W I N G.

LENGTH of the LOWER EXTREMITIES.

	<i>Apollo.</i>			<i>Venus.</i>		
	Hds.	Pts.	Min.	Hds.	Pts.	Min.
From the pubis to the small of the thigh above the patella or knee-pan	1	2	6	1	2	3
the small of the thigh to the joint or middle of the knee	0	1	9	0	1	6
the joint of the knee to the small of the leg above the ankle	1	1	9	1	2	0
the top to the bottom of the ankle	0	1	0	0	1	0
the bottom of the ankle to the bottom of the heel	0	0	9	0	0	9
Length of the lower extremities	3	3	9	3	3	6
Length of the head and trunk, as above	3	3	9	3	3	6
Total length of the figures	7	3	6	7	3	0

LENGTH of the FORE ARM or UPPER EXTREMITIES.

From the top of the shoulder to the elbow	1	2	3	1	2	3
the elbow to the hand	1	1	2	1	0	6
the joint of the hand to the root of the middle finger	0	1	8	0	1	6
the root to the tip of the middle finger	0	1	10	0	1	7
Length of the upper extremities	3	2	11	3	1	10
Breadth between the outward angles of the eyes	0	1	6	0	1	7
of the face at the temples	0	2	2	0	2	2
of the upper part of the neck	0	2	0	0	1	11
over the shoulders	0	0	0	1	3	8
of the body below the armpits	1	2	5	1	1	8
between the nipples	2	0	7	0	3	8
from the bottom of the chin to the horizontal line of the nipples	1	0	7	1	0	1
of the body at the small of the waist	1	1	0	1	0	8
over the loins or os ilium	1	1	3	1	1	6
over the haunches or tops of the thigh-bones	1	1	5	1	2	3
of the thigh at the top	0	3	0	0	3	1
of the thigh below the middle	0	2	8 ¹ / ₂	0	2	7
of the thigh above the knee	0	1	8	0	2	0
of the leg below the knee	0	1	6	0	1	10 ¹ / ₂
at the calf of the leg	0	2	4	0	2	3
below the calf	0	1	7	0	1	11 ¹ / ₂
above the ankle	0	1	2	0	1	2
of the ankle	0	1	4	0	1	3
below the ankle	0	1	1 ¹ / ₂	0	1	1
middle of the foot	0	1	4	0	1	3
at the roots of the toes	0	1	7	0	1	7
of the arm over the biceps muscle	0	1	8	0	1	9
of the arm over the elbow	0	1	6	0	1	5
of the arm below the elbow over the long supinator	0	1	10	0	1	7
at the wrist	0	1	1	0	1	0
of the hand over the first joint of the thumb	0	1	9	0	1	8
of the hand over the roots of the fingers	0	1	7	0	1	6
over the heads of the scapulæ or shoulder-blades	1	2	0	1	1	4
Length of both arms and hands, each of the Apollo's being 3 h. 2 p. 11 m. and } the Venus 3 h. 1 p. 5 m. }	7	1	10	6	2	10
Breadth between the tips of the middle fingers of each hand when the arms are } stretched out horizontally }	8	3	10	8	0	2

SIDE VIEW.

Length from the top of the head to the shoulder	1	1	8	1	1	6
from the top of the shoulder to the loins above the hip	1	3	8	1	1	7
from the loins to the lower part of the hip	1	0	2	1	2	1
from the hip to the side of the knee, opposite to the top of the patella	1	2	0	1	0	11
from the side of the knee to the bottom of the heel	2	0	5	2	0	11
Length of the figures	7	3	6	7	3	0

SIDE

D R A W I N G.

	SIDE VIEW.			Apollo.			Venus.		
	Hds.	Pts.	Min.	Hds.	Pts.	Min.	Hds.	Pts.	Min.
Thickness from the fore to the back part of the skull	0	3	6	0	3	4	0	3	4
from the wing of the nose to the tip of the ear	0	1	8 $\frac{1}{2}$	0	1	6	0	1	6
of the upper part of the neck	0	2	0	0	2	0	1	11	
from the breast to the back over the nipples	1	0	6	1	0	6	1	0	6
from the belly to the small of the back	0	3	6	0	3	7	0	3	7
from the belly above the navel to the back of the loins	0	3	9	1	0	2	1	0	2
from the bottom of the belly to the round of the hip	1	0	0	1	0	5	1	0	5
from the fore part of the thigh to the bottom of the hip	0	3	2	0	3	7	0	3	7
of the thigh at middle	0	3	3	0	3	6 $\frac{1}{2}$	0	3	6 $\frac{1}{2}$
of the thigh above the knee	0	2	1	0	2	3	0	2	3
at the middle of the knee below the patella	0	2	1	0	2	2	0	2	2
of the leg below the knee	0	1	9	0	1	11	0	1	11
of the leg at the calf	0	1	8	0	1	9	0	1	9
of the leg at the ankle	0	1	5 $\frac{1}{2}$	0	1	4	0	1	4
of the foot at the thickest part	0	0	0	0	0	3	0	0	3
length of the foot	1	0	6	1	0	4 $\frac{1}{2}$	1	0	4 $\frac{1}{2}$
from the fore part of the bend of the foot to the lower and back part of the heel	0	0	0	0	0	2	0	0	2
of the arm over the biceps	0	2	0	0	2	9	0	2	9
over the elbow	0	1	6	0	1	6	0	1	6
below the elbow	0	1	5	0	1	7	0	1	7
at the wrist	0	1	1	0	1	11	0	1	11
below the joint of the wrist	0	1	0	0	1	10	0	1	10
of the hand at the roots of the fingers	0	0	5 $\frac{1}{2}$	0	0	5	0	0	5
at the roots of the nails	0	0	3 $\frac{1}{2}$	0	0	3	0	0	3

The other most admired antique statues differ a little from these proportions, the Laocoon measuring 7 h. 2 p. 3 m. the Hercules 7 h. 3 p. 7 m. the Pyramus 7 h. 2 p. the Antinous 7 h. 2 p. the Grecian shepherds 7 h. 3 p. 6 m. and the Mirmillo 8 h. But all their other proportions are allowed to be harmonious and agreeable to the characters of the figures they represent.

The most remarkable differences of the symmetry or proportions of a man and of a woman to be observed from the Table are: First, The shoulders of a man are broader, measuring two heads, and the haunches narrower, measuring 1 h. 1 p. 5 m. whereas the shoulders of a woman measure only 1 h. 3 p. 8 m. and the haunches measure 1 h. 2 p. 3 m. The sternum or breast-bone of a man is longer, measuring 3 p. 8 m. and the sternum of the woman only 3 p. 3 m. On the contrary, the pelvis of a man is less, measuring from the top to bottom only 4 p. whereas the pelvis of a woman measures from the top to the bottom 4 p. 3 m.

It is a leading principle, in which every person conversant in designing has agreed, that without a perfect knowledge of the proportions, nothing can be produced but monstrous and extravagant figures; and it is also universally admitted, that the ancient Greek and Roman sculptors attained the highest success in producing the most perfect models.

The greatest of the modern artists who have examined their figures with attention admit, that several of the ancient sculptors in some degree have excelled nature, they never having found any man so perfect in all his parts as some of their figures are. Their opportunities indeed were great; Greece abounded with beauties; and Rome being mistress of the world, every thing that was curious and beautiful was brought to

it from all parts. Their motives were also powerful; religion, glory, and interest. They considered it as a kind of religious worship to give the figures of their gods so much nobleness and beauty as to be able to attract the love and veneration of the people. Their own glory was also concerned, particular honours being bestowed on those who succeeded; and for their fortune they had no further care to take when they once arrived at a certain degree of merit.

Attitudes and Action of the Muscles. If a strong person is to be represented in a vigorous action, such as Hercules, &c. after a suitable proportion to such a figure and the action is designed, the parts or limbs employed in the chiefest force of the action ought to be considered. If the figure is standing, the foot must be placed in a right line, or perpendicular to the trunk or bulk of the body, where the centre of gravity may be placed in *aequilibrio*. This centre is determined by the heel; or, if the figure is upon tiptoe, then the ball of the great toe is in the centre. The muscles of the leg which supports the body ought to be swelled, and their tendons drawn more to extension than those of the other leg, which is only placed so as to receive the weight of the body towards that way to which the action inclines it. For example, suppose Hercules with a club striking at any thing before him towards the left side: Then let his right leg be placed so as to receive the whole weight of the body, and the left loosely touching the ground with his toes. Here the external muscles of the right leg ought to be expressed very strong; but those of the left scarcely appearing more than if it were in some sedentary posture, except in the present case. The foot being extended, the muscles which compose the calf of the leg are in action and appear very strong; though it is not meant that all the muscles of the right leg, which supports the weight of

of the body, ought to be expressed very strong or equally swelled, but those most tumefied which are chiefly concerned in the action or posture that the leg is then in. For example, if the leg or tibia is extended, then the extending muscles placed on the thigh are most swelled: if it is bended, then the bending muscles and their tendons appear most. The like may be observed of the whole body in general when it is put into vigorous action. The Laocoon formerly in the Vatican garden at Rome, now in the Louvre at Paris, furnishes an example of this muscular appearance through the whole; but in the Antinous, Apollo, also in the Louvre, and other figures of the ancients, in postures where no considerable actions are designed, we see their muscles expressed but faintly, or scarcely appearing.

The clavicles or collar-bones, and muscles in general, do not appear in women as in men; nor will any action in which a woman uses her utmost strength occasion such swellings or risings of the muscles to appear as they do in men, since the great quantity of fat placed under the skin of women so clothes their muscles, &c. as to prevent any such appearances.

Effects of the Exertion of the Muscles. The following are the most obvious effects of the exertion of several of the muscles; of those, to wit, which chiefly demand the attention of an artist.

If either of the mastoid muscles (Plate CLXXXII. 1. 1.) act, the head is turned to the contrary side, and the muscle which performs that action appears very plain under the skin.

If the arms are lifted up, the deltoid muscles placed on the shoulders, which perform that action, swell, and make the extremities of the spines of the shoulder-blades (Plate CLXXXIII. 3. 3.), called the tops of the shoulders, appear indented or hollow.

The shoulder-blades following the elevation of the arms, their bases (Plate CLXXXIII. 4. 4.) incline at that time obliquely downward.

If the arms are drawn down, put forwards, or pulled backwards, the shoulder-blades necessarily vary their positions accordingly. All these particulars are to be learned by consulting the life only; when being well acquainted with what then appears in every action, the artist will be able to form an adequate idea how it ought to be expressed. These circumstances are little known; hence seldom attended to in designing.

When the cubit or fore-arm is bended, the biceps (Plate CLXXXII. 5. 5.) has its belly very much raised, as appears in the left arm. The like may be observed of the triceps (Plate CLXXXIII. 6. 6.) when the arm is extended as observed in the right arm.

The straight muscles of the abdomen (Plate CLXXXII. 7. 7.) appear very strong when rising from a decumbent posture.

Those parts of the great serratus muscle (ib. 8. 8.) which are received in the teeth or beginnings of the oblique descending muscle immediately below, are very much swelled when the shoulder on the same side is brought forwards; that serratus muscle then being in action in drawing the scapula forwards.

The long extending muscles of the trunk (Plate CLXXXIII. 9. 9.) act alternately in walking, after this manner: If the right leg bears the weight of the body, and the left is in translation as on tiptoe, the last mentioned muscles of the back on the left side may be

observed to be tumefied on the other side about the region of the loins, and so on the other side.

The trochanters, or outward and uppermost heads of the thigh-bones (Plate CLXXXIII. 10. 10.), vary in their positions in such a manner as no precise observation can explain their several appearances; but the study after the life ought to be carefully attended to.

If the thigh is extended, as when the whole weight of the body rests on that side, the gluteus or buttock muscle (Plate CLXXXIII. 11. 11.) makes a very different appearance from what offers at another time; but if the thigh is drawn backwards, that muscle appears still more and more tumefied.

When the whole leg is drawn upwards forwards, and at the same time the foot is inclined inwards, the upper part of the sartorius muscle (Plate CLXXXII. 12. 12) appears rising very strong; in other positions of the thigh, that muscle makes a furrowing appearance in its whole progress.

If a man is upon tiptoe, the extending muscles of the leg placed on the fore part of the thigh (Plate CLXXXII. 13. 13. 13.), and those of the foot that compose the calf of the leg (Plate CLXXXIII. 14. 14.) appear very strong, and the long peronæus (Plate CLXXXII. 15.) makes a considerable indentation or furrowing at that time in its progress on the outside of the leg.

Many other remarks might here be offered; but a due attention to nature will soon discover them.

§ 6. Of Light and Shade.

After the learner has made himself in some measure perfect in drawing outlines, his next endeavour must be to shade them properly. It is this which gives an appearance of substance, shape, distance, and distinction, to whatever body he endeavours to represent, whether animate or inanimate. The best rule for doing this is, to consider from what point, and in what direction the light falls upon the objects which he is delineating, and to let all his lights and shades be placed according to that direction throughout the whole work. That part of the object must be lightest which hath the light most directly opposite to it; if the light falls sideways on the picture, he must make that side which is opposite to it lightest, and that side which is farthest from it darkest. If he is drawing the figure of a man, and the light be placed above the head, then the top of the head must be made lightest, the shoulders next lightest, and the lower parts darker by degrees. That part of the object, whether in naked figures or drapery, or buildings, that stand farthest out, must be made the lightest, because it comes nearest to the light; and the light loseth so much of its brightness, by how much any part of the body bends inward, because those parts that stick out hinder the lustre and full brightness of the light from striking on those parts that fall in. Titian used to say, that he knew no better rule for the distribution of lights and shadows than his observations drawn from a bunch of grapes. Satins and silks, and all other shining stuffs, have certain glancing reflections, exceeding bright where the light falls strongest. The like is seen in armour, brass pots, or any other glittering metal, where you see a sudden brightness in the middle or centre of the light,

which discovers the shining nature of such things. Observe also, that a strong light requires a strong shade, a fainter light a fainter shade; and that an equal balance be preserved throughout the piece between the lights and shades. Those parts which must appear round require but one stroke in shading, and that sometimes but very faint; such parts as should appear steep or hollow, require two strokes across each other, or sometimes three, which is sufficient for the deepest shade. Care must be also taken to make the outlines faint and small in such parts as receive the light; but where the shades fall, the outline must be strong and bold. The learner must begin his shadings from the top, and proceed downward, and use his utmost endeavours both by practice and observation to learn how to vary the shadings properly; for in this consists a great deal of the beauty and elegance of drawing. Another thing to be observed is, that as the human sight is weakened by distances, so objects must seem more or less confused or clear according to the places they hold in the piece: Those that are very distant,—weak, faint, and confused; those that are near and on the foremost ground,—clear, strong, and accurately finished.

§ 7. *Of Drapery.*

In the art of clothing the figures, or casting the drapery properly and elegantly upon them, many things are to be observed. 1. The eye must never be in doubt of its object; but the shape and proportion of the part or limb, which the drapery is supposed to cover, must appear; at least so far as art and probability will permit: and this is so material a consideration, that many artists draw first the naked figure, and afterwards put the draperies upon it. 2. The drapery must not fit too close to the parts of the body: but let it seem to flow round, and as it were to embrace them; yet so as that the figure may be easy, and have a free motion. 3. The draperies which cover those parts that are exposed to great light must not be so deeply shaded as to seem to pierce them; nor should those members be crossed by folds that are too strong, lest by the too great darkness of the shades the members look as if they were broken. 4. The great folds must be drawn first, and then stroked into lesser ones: and great care must be taken that they do not cross one another improperly. 5. Folds in general should be large, and as few as possible. However they must be greater or less according to the quantity and quality of the stuffs of which the drapery is supposed to be made. The quality of the person is also to be considered in the drapery. If they are magistrates, their draperies ought to be large and ample: if country clowns or slaves, they ought to be coarse and short; if ladies or nymphs, light and soft. 6. Suit the garments to the body, and make them bend with it, according as it stands in or out, straight or crooked; or as it bends one way or another; and the closer the garment fits to the body, the narrower and smaller must be the folds. 7. Folds well imagined give much spirit to any kind of action; because their motion implies a motion in the acting member, which seems to draw them forcibly, and makes them more or less stirring as the action is more or less violent. 8. An artful complication of folds in a circular manner greatly helps the effect of foreshortenings. 9. All folds consist of two shades, and no

more: which you may turn with the garment at pleasure, shadowing the inner side deeper, and the outer more faintly. 10. The shades in silk and fine linen are very thick and small, requiring little folds and a light shadow. 11. Observe the motion of the air or wind, in order to draw the loose apparel all flying one way; and draw that part of the garment that adheres closest to the body before you draw the looser part that flies off from it; lest, by drawing the loose part of the garment first, you should mistake the position of the figure, and place it awry. 12. Rich ornaments, when judiciously and sparingly used, may sometimes contribute to the beauty of draperies. But such ornaments are far below the dignity of angels or heavenly figures; the grandeur of whose draperies ought rather to consist in the boldness and nobleness of the folds, than in the quality of the stuff or the glitter of ornaments. 13. Light and flying draperies are proper only to figures in great motion, or in the wind: but when in a calm place, and free from violent action, their draperies should be large and flowing; that by their contrast and the fall of the folds, they may appear with grace and dignity. Thus much for drapery; an example or two of which are given in Plate CLXXIX. But see farther the articles CRAYON and PAINTING.

§ 8. *On the Passions.*

The passions, says M. le Brun, are motions of the soul, either upon her pursuing what she judges to be for her good, or shunning what she thinks hurtful to her; and commonly, whatever causes emotion or passion in the soul, creates also some action in the body. It is therefore necessary for a painter to know which are the different actions in the body that express the several passions of the soul, and how to delineate them.

M. Le Brun has been extremely happy in expressing many of the passions, and the learner cannot study any thing better than the examples which he has left us of them. However, as M. De Piles justly observes, it is absurd as well as impossible to pretend to give such particular demonstrations of them as to fix their expression to certain strokes, which the painter should be obliged to make use of as essential and invariable rules. This (says he) would be depriving the art of that excellent variety of expression which has no other principle than diversity of imagination, the number of which is infinite. The same passion may be finely expressed several ways, each yielding more or less pleasure in proportion to the painter's understanding and the spectator's discernment.

Though every part of the face contributes towards expressing the sentiments of the heart, yet the eyebrow, according to M. Le Brun, is the principal seat of expression, and where the passions best make themselves known. It is certain, says he, that the pupil of the eye, by its fire and motion, very well shows the agitation of the soul, but then it does not express the kind or nature of such an agitation; whereas the motion of the eyebrow differs according as the passions change their nature. To express a simple passion, the motion is simple; to express a mixed passion, the motion is gentle: and if it be violent, the motion is too. We may observe farther, says he, that there are two

two kinds of elevation in the eyebrows. One, in which the eyebrows rise up in the middle; this elevation expresses agreeable sensations, and it is to be observed that then the mouth rises at the corners: Another, in which the eyebrows rise up at the ends, and fall in the middle; this motion denotes bodily pain, and then the mouth falls at the corners. In laughter, all the parts agree; for the eyebrows, which fall toward the middle of the forehead, make the nose, the mouth, and the eyes, follow the same motion. In weeping, the motions are compound and contrary; for the eyebrows fall toward the nose and over the eyes, and the mouth rises that way. It is to be observed also, that the mouth is the part of the face which more particularly expresses the emotions of the heart: for when the heart complains, the mouth falls at the corners; when it is at ease, the corners of the mouth are elevated; and when it has an aversion, the mouth shoots forward, and rises in the middle.

“The head (says M. De Piles) contributes more to the expression of the passions than all the other parts of the body put together. Those separately can only show some few passions, but the head expresses them all. Some, however, are more peculiarly expressed by it than others: as humility, by hanging it down; arrogance, by lifting it up; languishment, by inclining it to one side; and obstinacy, when with a stiff and resolute air it stands upright, fixed, and stiff between the two shoulders. The head also best shows our supplications, threats, mildness, pride, love, hatred, joy, and grief. The whole face, and every feature, contributes something: especially the eyes; which, as Cicero says, are the windows of the soul. The passions they more particularly discover are, pleasure, languishing, scorn, severity, mildness, admiration, and anger; to which one might add joy and grief, if they did not proceed more particularly from the eyebrows and mouth; but when those two passions fall in also with the language of the eyes, the harmony will be wonderful. But though the passions of the soul are most visible in the lines and features of the face, they often require the assistance also of the other parts of the body. Without the hands, for instance, all action is weak and imperfect; their motions, which are almost infinite, create numberless expressions: it is by them that we *desire, hope, promise, call, send back*; they are the instruments of *threatening, prayer, horror, and praise*; by them we *approve, condemn, refuse, admit, fear, ask*; express our *joy and grief, our doubts, regrets, pain, and admiration*. In a word, it may be said, as they are the language of the dumb, that they contribute not a little to speak a language common to all nations, which is the language of painting. But to say how these parts must be disposed for expressing the various passions, is impossible; nor can any exact rules be given for it, both because the task would be infinite, and because every one must be guided in this by his own genius and the particular turn of his own studies.” See the article PASSIONS, and the Plate there referred to.

§ 9. *Of drawing Flowers, Fruits, Birds, Beasts, &c.*

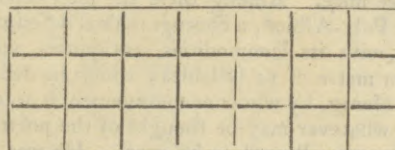
The learner may proceed now to make some attempts at drawing flowers, fruits, birds, beasts, and the like; not only as it will be a more pleasing employment, but as it is an easier task, than the draw-

ing of hands and feet, and other parts of the human body, which require not only more care, but greater exactness and nicer judgment. Very few rules or instructions are requisite upon this head; the best thing the learner can do is, to furnish himself with good prints or drawings by way of examples, and with great care and exactness to copy them. If it is the figure of a beast, begin with the forehead, and draw the nose, the upper and under jaw, and stop at the throat. Then go to the top of the head, and form the ears, neck, back, and continue the line till you have given the full shape of the buttock. Then form the breast, and mark out the legs and feet, and all the smaller parts. And, last of all, finish it with the proper shadows. It is not amiss, by way of ornament, to give a small sketch of landscape; and let it be suitable and natural to the place or country of the beast you draw. Much the same may be said with regard to birds. Of these, as well as beasts and other objects, the learner will find many examples among the plates given in this work.

§ 10. *Of drawing Landscapes, Buildings, &c.*

Of all the parts of drawing, this is the most useful and necessary, as it is what every man may have occasion for at one time or another. To be able, on the spot, to take the sketch of a fine building, or a beautiful prospect; of any curious production of art, or uncommon appearance in nature; is not only a very desirable accomplishment, but a very agreeable amusement. Rocks, mountains, fields, woods, rivers, cataracts, cities, towns, castles, houses, fortifications, ruins, or whatsoever else may present itself to view on our journeys or travels in our own or foreign countries, may be thus brought home, and preserved for our future use either in business or conversation. On this part, therefore, more than ordinary pains should be bestowed.

All drawing consists in nicely measuring the distances of each part of the piece by the eye. In order to facilitate this, let the learner imagine in his own mind, that the piece he copies is divided into squares. For example: Suppose or imagine a perpendicular and a horizontal line crossing each other in the centre of the picture you are drawing from; then suppose also two such lines crossing your own copy. Observe in the original, what parts of the design those lines intersect, and let them fall on the same parts of the supposed lines in the copy: We say, the supposed lines; because though engravers, and others who copy with great exactness, divide both the copy and original into many squares, as below; yet this is a method not to be re-



commended, as it will be apt to deceive the learner, who will fancy himself a tolerable proficient, till he comes to draw after nature, where these helps are not to be had, when he will find himself miserably defective and utterly at a loss.

If he is to draw a landscape from nature, let him
S f 2 take

take his station on a rising ground, where he will have a large horizon; and mark his tablet into three divisions, downwards from the top to the bottom; and divide in his own mind the landscape he is to take, into three divisions also. Then let him turn his face directly opposite to the midst of the horizon, keeping his body fixed, and draw what is directly before his eyes upon the middle division of the tablet; then turn his head, but not his body, to the left hand, and delineate what he views there, joining it properly to what he had done before; and, lastly, do the same by what is to be seen upon his right hand, laying down every thing exactly both with respect to distance and proportion. One example is given on Plate CLXXIX.

The best artists, in drawing their landscapes, make them shoot away one part lower than another. Those who make their landscapes mount up higher and higher, as if they stood at the bottom of a hill to take the prospect, commit a great error: the best way is to get upon a rising ground, make the nearest objects in the piece the highest, and those that are farther off to

shoot away lower and lower till they come almost level with the line of the horizon, lessening every thing proportionably to its distance, and observing also to make the objects fainter and less distinct the farther they are removed from the eye. He must make all his lights and shades fall one way, and let every thing have its proper motion: as trees shaken by the wind, the small boughs bending more, and the large ones less: water agitated by the wind, and dashing against ships or boats; or falling from a precipice upon rocks and stones, and spiriting up again into the air, and sprinkling all about: clouds also in the air, now gathered with the winds; now violently condensed into hail, rain, and the like: Always remembering, that whatever motions are caused by the wind must be made all to move the same way, because the wind can blow but one way at once.

Finally, It must be observed, that in order to attain any considerable proficiency in drawing, a knowledge of PERSPECTIVE is absolutely necessary: see that article.

D R A

Dray,
Drayton.

DRAY, a kind of cart used by brewers for carrying barrels of beer or ale; also a sledge drawn without wheels.

DRAY, among sportsmen, denotes squirrel nests built in the tops of trees.

DRAYTON, MICHAEL, an eminent English poet, born of an ancient family in Warwickshire in 1563. His propensity to poetry was extremely strong, even from his infancy; and we find the most of his principal poems published, and himself highly distinguished as a poet, by the time he was about 30 years of age.—It appears from his poem of Moses's Birth and Miracles, that he was a spectator at Dover of the famous Spanish armada, and it is not improbable that he was engaged in some military employment there. It is certain, that not only for his merit as a writer but his valuable qualities as a man, he was held in high estimation, and strongly patronized by several personages of consequence; particularly by Sir Henry Goodere, Sir Walter Aston, and the countess of Bedford; to the first of whom he owns himself indebted for great part of his education, and by the second he was for many years supported.

His poems are very numerous; and so elegant, that his manner has been copied by many modern writers of eminence since. Among these the most celebrated one is the Poly-Albion, a chorographical description of England, with its commodities, antiquities, and curiosities, in metre of 12 syllables; which he dedicated to Prince Henry, by whose encouragement it was written: and whatever may be thought of the poetry, his descriptions are allowed to be exact. He was styled *poet laureat* in his time: which, as Ben Johnson was then in that office, is to be understood in a loose sense of approbation as an excellent poet; and was bestowed on others as well as Drayton, without being confined strictly to the office known by that appellation. He died in 1631; and was buried in Westminster abbey

D R E

among the poets, where his bust is to be seen, with an epitaph penned by Ben Johnson.

Dreams.

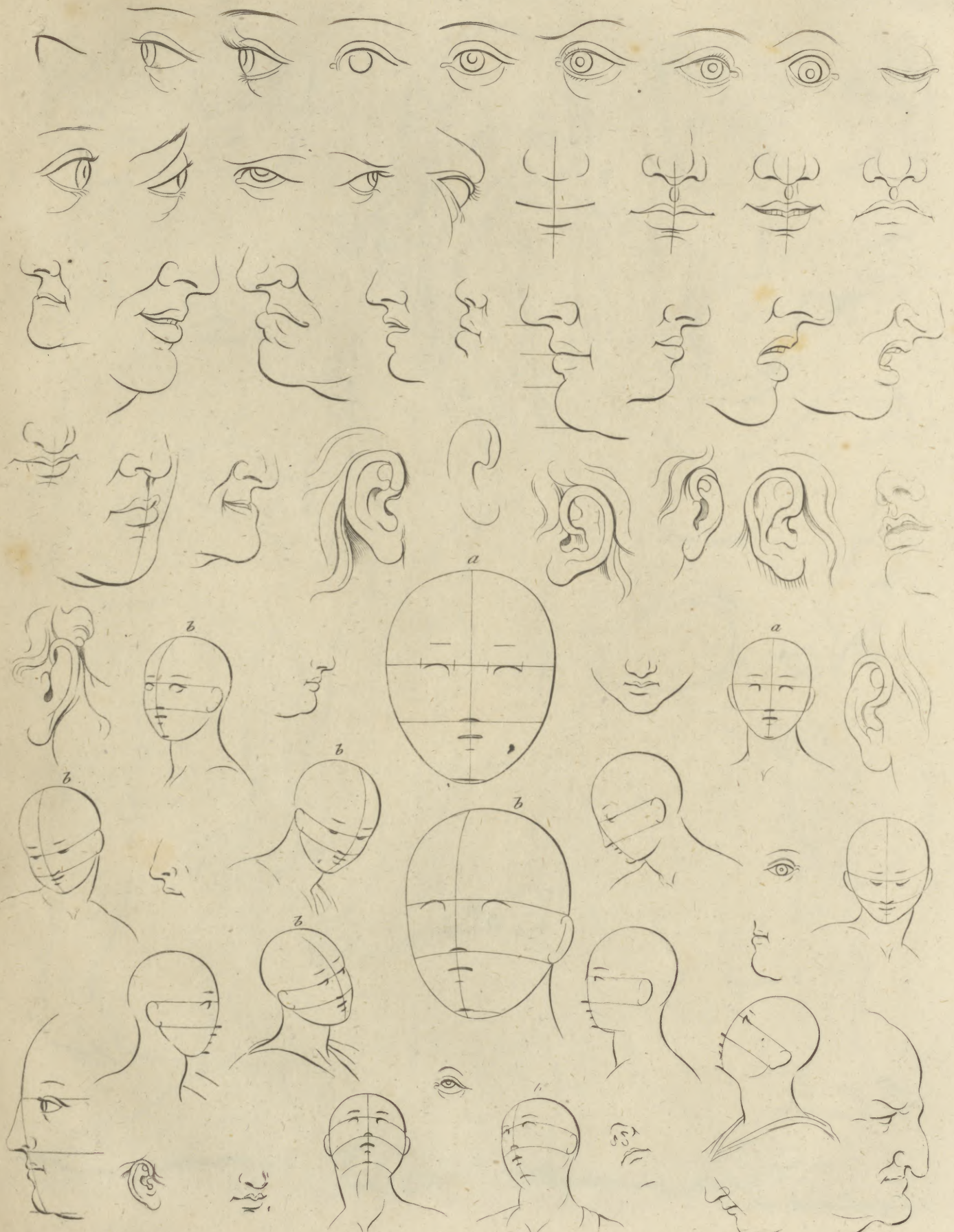
DREAMS, are all those thoughts which people feel passing through their minds, and those imaginary transactions in which they often fancy themselves engaged, when in the state of sleep.

Scarce any part of nature is less open to our observation than the human mind in this state. The dreamer himself cannot well observe the manner in which dreams arise or disappear to him. When he awakes, he cannot recollect the circumstances of his dreams with sufficient accuracy. Were we to watch over him with the most vigilant attention, we could not perceive with certainty what emotions are excited in his mind, or what thoughts pass through it, during his sleep. But though we could ascertain these phenomena, many other difficulties would still remain. What parts of a human being are active, what dormant, when he dreams? Why does not he always dream while asleep? Or why dreams he at all? Do any circumstances in our constitution, situation, and peculiar character, determine the nature of our dreams?

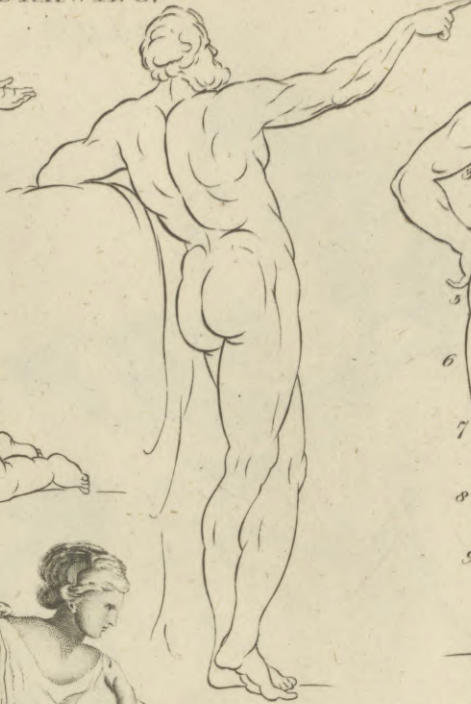
We may lay before our readers such facts as have been ascertained concerning dreaming, and the most plausible conjectures that have been offered to explain those particulars, about which we can only conjecture, or have at least hitherto obtained nothing more certain than conjecture.

1. In dreaming, we are not conscious of being asleep. This is well known from a thousand circumstances. When awake, we often recollect our dreams; and we remember on such occasions, that while those dreams were passing through our minds, it never occurred to us that we were separated by sleep from the active world. We are often observed to act and talk in dreaming as if we were busily engaged in the intercourse of social life.

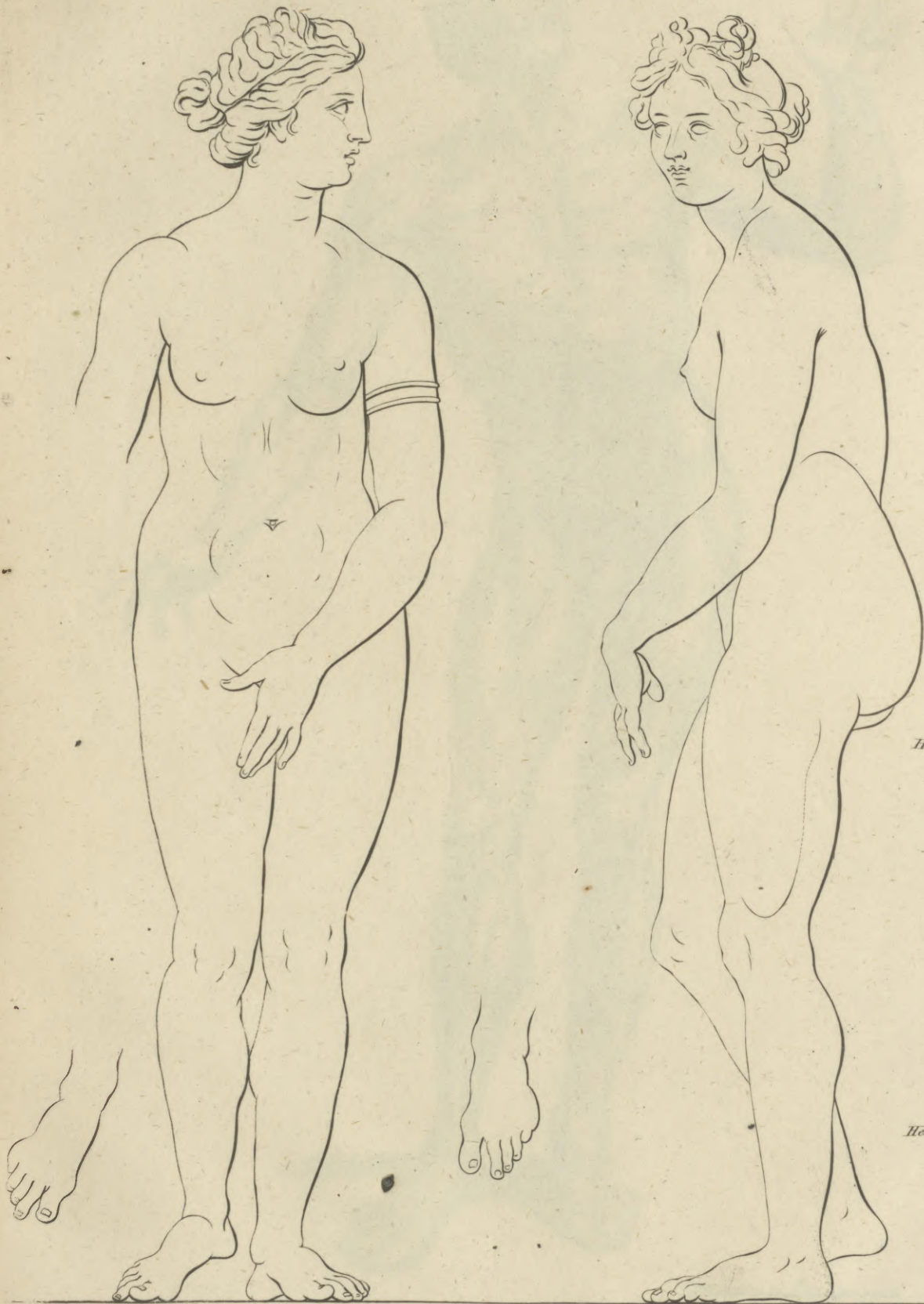
2. In dreaming, we do not consider ourselves as witnessing





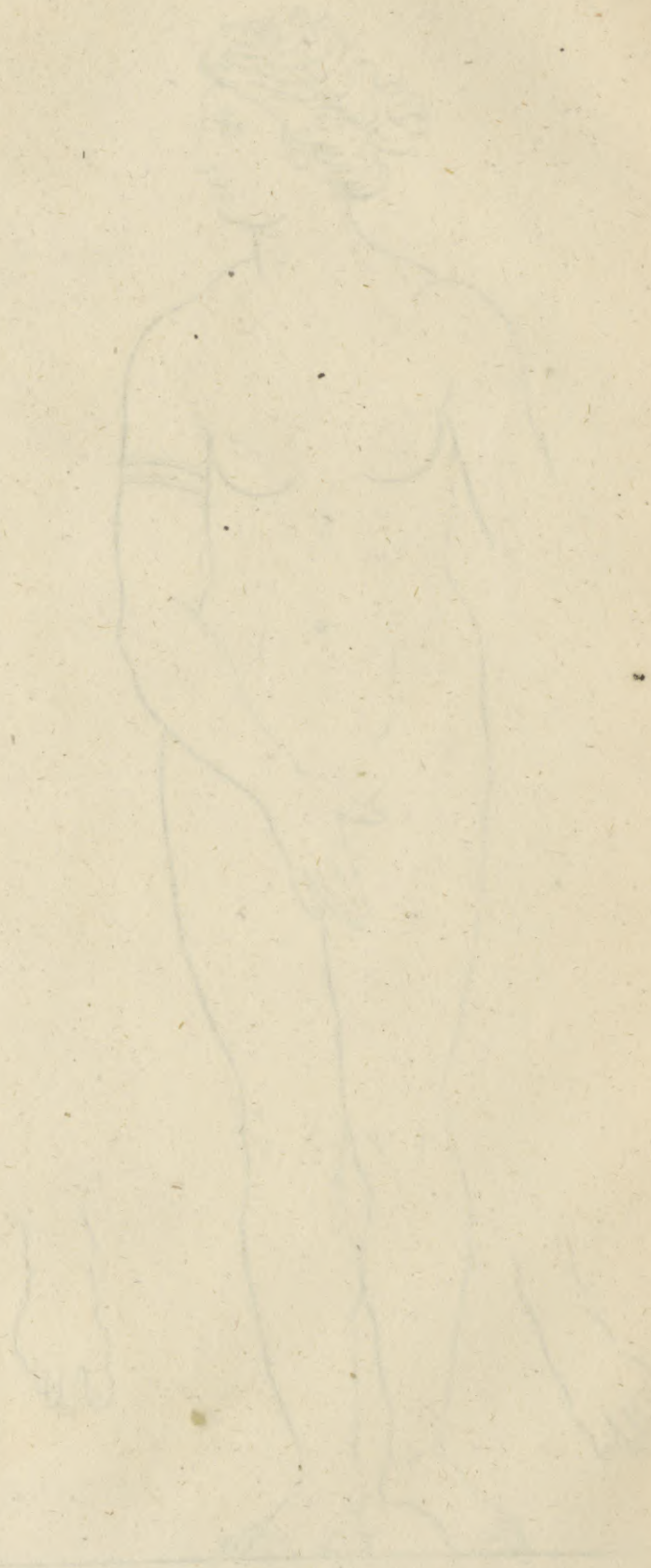






THE FIGURE

STANDING





A. Bell Pin. W. Al. Sculptor fecit.





Dreams.

witnessing or bearing a part in a fictitious scene: we seem not to be in a similar situation with the actors in a dramatic performance, or the spectators before whom they exhibit, but engaged in the business of real life. All the varieties of thought that pass through our minds when awake may also occur in dreams; all the images which imagination presents in the former state, she is also able to call up in the latter; all the same emotions may be excited, and we are often actuated by equal violence of passion; none of the transactions in which we are capable of engaging while awake is impossible in dreams: in short, our range of action and observation is equally wide in the one state as in the other; and while dreaming, we are not sensible of any distinction between our dreams and the events and transactions in which we are actually concerned in our intercourse with the world.

3. It is said, that all men are not liable to dream. Dr Beattie, in a very pleasing essay on this subject, relates, that he knew a gentleman who never dreamed except when his health was in a disordered state; and Locke mentions somewhere, that a certain person of his acquaintance was a stranger to dreaming till the 26th year of his age; and then began to dream in consequence of having a fever. These instances, however, are too few, and we have not been able to obtain more; and, besides, it does not appear that those persons had always attended, with the care of a philosopher making an experiment, to the circumstances of their sleep. They might dream, but not recollect their dreams on awaking; and they might both dream and recollect their dreams immediately upon awaking, yet afterwards suffer the remembrance of them to slip out of the memory. We do not advance this therefore as a certain fact concerning dreaming; we are rather inclined to think it a mistake.

But though it appears to be by no means certain that any of the human race are through the whole of life absolute strangers to dreaming; yet it is well known that all men are not equally liable to dream. The same person dreams more or less at different times; and as one person may be more exposed than another to those circumstances which promote this exercise of fancy, one person may therefore dream more than another. The same diversity will naturally take place in this as in other accidents to which mankind are in general liable.

4. Though in dreams imagination appears to be free from all restraint, and indulges in the most wanton freaks; yet it is generally agreed, that the imaginary transactions of the dreamer bear always some relation to his particular character in the world, his habits of action, and the circumstances of his life. The lover, we are told, dreams of his mistress; the miser of his money; the philosopher renews his researches in sleep often with the same pain and fatigue as when awake; and even the merchant, at times, returns to balance his books, and computes the profits of an adventure, when slumbering on his pillow. And not only do the more general circumstances of a person's life influence his dreams; his passions and habits are nearly the same when asleep as when awake. A person whose habits of life are virtuous, does not in his dreams plunge into a series of crimes; nor are the vicious reformed when

they pass into this imaginary world. The choleric man finds himself offended by slight provocations as well in his dreams as in his ordinary intercourse with the world, and a mild temper continues pacific in sleep.

5. The character of a person's dreams is influenced by his circumstances when awake in a still more unaccountable manner. Certain dreams usually arise in the mind after a person has been in certain situations. Dr Beattie relates, that he once, after riding 30 miles in a high wind, passed a part of the succeeding night in dreams beyond description terrible. The state of a person's health, and the manner in which the vital functions are carried on, have a considerable influence in determining the character of dreams. After too full a meal, or after eating of an unwholesome food, a person has always dreams of a certain nature.

6. In dreaming, the mind for the most part carries on no intercourse through the senses with surrounding objects. Touch a person gently who is asleep, he feels not the impression. You may awake him by a smart blow; but when the stroke is not sufficiently violent to awake him, he remains insensible of it. We speak softly beside a person asleep without fearing that he overhear us. His eyelids are shut; and even though light should fall upon the eyeball, yet still his powers of vision are not wakened to active exertion, unless the light be so strong as to rouse him from sleep. He is insensible both to sweet and to disagreeable smells. It is not easy to try whether his organs of taste retain their activity, without awakening him; yet from analogy it may be presumed that these too are inactive. With respect to the circumstances here enumerated, it is indifferent whether a person be dreaming or buried in deep sleep.

Yet there is one remarkable fact concerning dreaming which may seem to contradict what has been here asserted. In dreams, we are liable not only to speak aloud in consequence of the suggestions of imagination, but even to get up, and walk about and engage in little enterprises, without awaking. Now, as we are in this instance so active, it seems that we cannot be then insensible of the presence of surrounding objects. The sleepwalker is really sensible in a certain degree of the presence of the objects around him; but he does not attend to them with all their circumstances, nor do they excite in him the same emotions as if he were awake. He feels no terror on the brink of a precipice; and in consequence of being free from fear, he is also without danger in such a situation unless suddenly awaked. This is one of the most inexplicable phenomena of dreaming.

There is also another fact not quite consonant with what has been above mentioned. It is said, that in sleep a person will continue to hear the noise of a cataract in the neighbourhood, or regular strokes with a hammer, or any similar sound sufficiently loud, and continued uninterruptedly from before the time of his falling asleep. We know not whether he awakes on the sudden cessation of the noise. This fact is asserted on sufficient evidence: it is curious. Even when awake, if very deeply intent on any piece of study, or closely occupied in business, the sound of a clock striking in the neighbourhood, or the beating of a drum, will escape

Dreams.

Dreams. escape us unnoticed ; and it is therefore the more surprising that we should thus continue sensible to sounds when asleep.

7. Not only do a person's general character, habits of life and state of health, influence his dreams ; but those concerns in which he has been most deeply interested during the preceding day, and the views which have arisen most frequently to his imagination, very often afford the subjects of his dreams. When I look forward with anxious expectation towards any future event, I am likely to dream either of the disappointment or the gratification of my wishes. Have I been engaged through the day, either in business or amusements which I have found exceedingly agreeable, or in a way in which I have been extremely unhappy ? either my happiness or my misery is likely to be renewed in my dreams.

8. Though dreams have been regarded among almost all nations through the world, at least in some periods of their history, as prophetic of future events ; yet it does not appear that this popular opinion has been established on good grounds. Christianity, indeed, teaches us to believe, that the Supreme Being may, and actually does, operate on our minds, and influence at times the determinations of our will, without making us sensible of the restraint to which we are thus subjected. And, in the same manner, no doubt, the suggestions which arise to us in dreams may be produced. The imaginary transactions in which we are then engaged, may be such as are actually to occupy us in life ; the strange and seemingly incoherent appearances which are then presented to the mind's eye, may allude to some events which are to befall ourselves or others. It is, therefore, by no means impossible, or inconsistent with the general analogy of nature, that dreams should have a respect to futurity. We have no reason to regard the dreams which are related in the Holy Scriptures to have been prophetic of future events, as not inspired by Heaven, or to laugh at the idea of a prophetic dream as absurd or ridiculous.

Yet it would be too much to allow to dreams all that importance which has been ascribed to them by the priesthood among heathen nations, or by the vulgar among ourselves. We know how easily ignorance imposes on itself, and what arts imposture adopts to impose upon others. We cannot trace any certain connexion between our dreams and those events to which the simplicity of the vulgar pretends that they refer. And we cannot, therefore, if disposed to confine our belief to certain or probable truths, join with the vulgar in believing them really referable to futurity.

9. It appears that the brutes are also capable of dreaming. The dog is often observed to start suddenly up in his sleep, in a manner which cannot be accounted for in any other way than by supposing that he is roused by some impulse received in a dream. The same thing is observable of others of the inferior animals. That they should dream, is not an idea inconsistent with what we know of their economy and manners in general. We may, therefore, consider it as

a pretty certain truth, that many, if not all, of the lower species are liable to dream as well as human beings. Dreams.

It appears, then, that in dreaming we are not conscious of being asleep ; that to a person dreaming, his dreams seem realities ; that though it be uncertain whether mankind are all liable to dreams, yet it is well known that they are not all *equally* liable to dream : that the nature of a person's dreams depends in some measure on his habits of action, and on the circumstances of his life : that the state of the health too, and the manner in which the vital functions are carried on, have a powerful influence in determining the character of a person's dreams : that in sleep and in dreaming, the senses are either absolutely inactive, or nearly so : that such concerns as we have been very deeply interested in during the preceding day, are very likely to return upon our minds in dreams in the hours of rest : that dreams may be rendered prophetic of future events ; and therefore, wherever we have such evidence of their having been prophetic as we would accept on any other occasion, we cannot reasonably reject the fact on account of its absurdity ; but that they do not appear to have been actually such, in those instances in which the superstition of nations, ignorant of true religion, has represented them as referring to futurity, nor in those instances in which they are viewed in the same light by the vulgar among ourselves ; and, lastly, that dreaming is not a phenomenon peculiar to human nature, but common to mankind with the brutes.

We know of no other facts that have been fully ascertained concerning *dreaming*. But we are by no means sufficiently acquainted with this important phenomenon in the history of mind. We cannot tell by what laws of our constitution we are thus liable to be so frequently engaged in imaginary transactions, nor what are the particular means by which the delusion is accomplished. The delusion is indeed remarkably strong. One will sometimes have a book presented to him in a dream, and fancy that he reads ; and actually enter into the nature of the imaginary composition before him, and even remember, after he awakes, what he knows that he only fancied himself reading (A). Can this be delusion ? If delusion, how or for what purposes is it produced ? The mind, it would appear, does not, in sleep, become inactive like the body ; or at least is not always inactive while we are asleep. When we do not dream, the mind must either be inactive, or the connexion between the mind and the body must be considered as in some manner suspended : and when we dream, the mind, though it probably acts in concert with the body, yet does not act in the same manner as when we are awake. It seems to be clouded or bewildered, in consequence of being deprived for a time of the service of the senses. Imagination becomes more active and more capricious : and all the other powers, especially judgment and memory, become disordered and irregular in their operation.

Various theories have been proposed to explain what appears here most inexplicable. The ingenious Mr Baxter

(A) The writer of this article has been told by a respectable old gentleman of his acquaintance, since dead, that he had frequently dreams of this nature. The fact may therefore be considered as unquestionable.

Dreams. Baxter, in his Treatise on the Immateriality of the Human Soul, endeavours to prove that dreams are produced by the agency of some spiritual beings, who either amuse or employ themselves seriously in engaging mankind in all those imaginary transactions with which they are employed in dreaming. This theory, however, is far from being plausible. It leads us entirely beyond the limits of our knowledge. It requires us to believe without evidence. It is unsupported by any analogy. It creates difficulties still more inexplicable than those which it has been proposed to remove. Till it appear that our dreams cannot possibly be produced without the interference of other spiritual agents, possessing such influence over our minds as to deceive us with fancied joys, and involve us in imaginary afflictions, we cannot reasonably refer them to such a cause. Besides, from the facts which have been stated as well known concerning dreams, it appears that their nature depends both on the state of the human body and on that of the mind. But were they owing to the agency of other spiritual beings, how could they be influenced by the state of the body? Those must be a *curious* set of spiritual beings who depend in such a manner on the state of our corporeal frame. Better not to allow them existence at all, than to place them in such a dependence.

Wolfius, and after him M. Formey, have supposed, that dreams never arise in the mind, except in consequence of some of the organs of sensation having been previously excited. Either the ear or the eye, or the organs of touching, tasting, or smelling, communicate information, somehow, in a tacit, secret manner; and thus partly rouse its faculties from the lethargy in which they are buried in sleep, and engage them in a series of confused and imperfect exertions. But what passes in dreams is so very different from all that we do when awake, that it is impossible for the dreamer himself to distinguish, whether his powers of sensation *perform* any part on the occasion. It is not necessary that imagination be always excited by sensation. Fancy, even when we are awake, often wanders from the present scene. *Absence of mind* is incident to the studious: the poet and the mathematician many times forget where they are. We cannot discover from any thing that a person in dreaming displays to the observation of others, that his organs of sensation take a part in the imaginary transactions in which he is employed. In those instances, indeed, in which persons asleep are said to hear sounds; the sounds which they hear are said also to influence, in some manner, the nature of their dreams. But such instances are singular. Since then it appears that the person who dreams is himself incapable of distinguishing either during his dreams, or by recollection when awake, whether any new impressions are communicated to him in that state by his organs of sensation; that even by watching over him, and comparing our observations of his circumstances and emotions, in his dreams, with what he recollects of them after awaking, we cannot, except in one or two singular instances, ascertain this fact; and that the mind is not incapable of acting while the organs of sensation are at rest, and on many occasions refuses to listen to the information which they convey; we may, without hesitation, conclude, that the theory of Wolfius

and Formey has been too hastily and incautiously advanced. Dreams.

Other physiologists tell us, that the mind, when we dream, is in a state of *delirium*. Sleep, they say, is attended with what is called a *collapse* of the brain; during which either the whole or a part of the nerves of which it consists, are in a state in which they cannot carry on the usual intercourse between the mind and the organs of sensation. When the whole of the brain is in this state, we become entirely unconscious of existence, and the mind sinks into inactivity: when only a part of the brain is *collapsed*, as they term it, we are then neither asleep nor awake, but in a sort of delirium between the two. This theory, like the last mentioned, supposes the mind incapable of acting without the help of sensation: it supposes that we know the nature of a state of which we cannot ascertain the phenomena: it also contradicts a known fact, in representing dreams as confused images of things around us, not fanciful combinations of things not existing together in nature or in human life. We must treat it likewise, therefore, as a baseless fabric.

In the last edition of this work, a theory somewhat different from any of the foregoing was advanced in this subject. It was observed, that the nervous fluid, which is allowed to be secreted from the blood by the brain, appears to be likewise absorbed from the blood by the extremities of the nerves. It was farther advanced, that as this fluid was to be considered as the principle of sensibility; therefore, in all cases in which a sufficient supply of it was not absorbed from the blood by the extremities of the nerves, the parts of the body to which those nerves belonged, must be, in some degree, deprived of sensation. From these positions it was inferred, that as long as impressions of external objects continue to communicate a certain motion from the sentient extremities of the nerves to the brain,—so long we continue awake; and that, when there is a deficiency of this vital fluid in the extremities of the nerves, or when from any other cause it ceases to communicate to the brain the peculiar motion alluded to, we must naturally fall asleep, and become insensible of our existence. It followed of consequence, that, in sleep, the nervous fluid between the extreme parts of the nerves and the brain must either be at rest, or be deficient, or be prevented by some means from passing into the brain: and it was concluded, that whenever irregular motions of this fluid were occasioned by any internal cause, *dreaming* was produced. In this manner it appeared that we might be deceived with regard to the operation of any of the senses;—so as to fancy that we saw objects not actually before us,—to hear imaginary sounds,—to taste,—to feel, and to smell in imagination. The instances of visions which will sometimes arise, and as it were swim before us when awake, though our eyes be shut, *tinnitus aurium*, which is often a symptom in nervous diseases, and the strange feelings in the case of the amputated limb, were produced in proof of this theory, and applied so as to confirm it.

We are still of opinion, that this theory is more plausible, and goes farther toward explaining the nature of *dreaming*, and the manner in which *dreams* are produced, than any other with which we are acquainted. But it must be confessed, upon a review, that even

Dreams,
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court.

in it there is too much supposition. The nature of the nervous fluid is but imperfectly known, and even its existence not very fully ascertained. The nature of the connexion by which the soul and body are united, seems to be almost beyond our comprehension. And till we can apply experiment and observation in a better manner to this branch of physiology, it must undoubtedly remain unknown. To something mysterious in the nature of that connexion, the delusion produced in dreams is in all probability owing.

Amid this uncertainty with respect to the manner in which the powers of mind and body perform their functions in dreaming, it is pleasing to find that we can, however, apply to useful purposes the imperfect knowledge which we have been able to acquire concerning this series of phenomena. Our dreams are affected by the state of our health, by the manner in which we have passed the preceding day, by our general habits of life, by the hopes which we most fondly indulge, and the fears which prevail most over our fortitude when we are awake. From recollecting our dreams, therefore, we may learn to correct many improprieties in our conduct; to refrain from bodily exercises, or from meats and drinks that have unfavourable effects on our constitution; to resist, in due time, evil habits that are stealing upon us; and to guard against hopes and fears which detach us from our proper concerns, and unfit us for the duties of life. Instead of thinking what our dreams may forebode, we may with much better reason reflect by what they have been occasioned, and look back to those circumstances in our past life to which they are owing. The sleep of innocence and health is sound and refreshing; their dreams delightful and pleasing. A disordered body, and a polluted or perturbed mind, are haunted in sleep with frightful, impure, and unpleasing dreams.

Some very beautiful fables have been written both by ancients and moderns in the form of dreams. The *Somnium Scipionis* is one of the finest of Cicero's compositions. He who shall carefully peruse this piece, with Macrobius's commentary upon it, will acquire from them considerable knowledge of ancient philosophy. In the periodical publications, which have diffused so much elegant and useful knowledge through Britain, the *Tatlers*, *Spectators*, *Guardians*, &c. we find a number of excellent dreams. Addison excelled in this way of writing. The public are now less partial to this species of composition than they formerly were.

Dr Beattie, in his valuable essay on the subject of dreaming, quotes a very fine one from the *Tatler*, and gives it due praise.

The reader who is disposed to speculate farther on this subject, may consult Beattie's *Essays*, Hartley on *Man*, and the principal writers on physiology.

DRELINCOURT, CHARLES, minister of the reformed church at Paris, was born at Sedan in 1595, where his father enjoyed a considerable post. He had all the qualifications that compose a respectable clergyman; and though he defended the Protestant cause against the Romish religion, was much esteemed even among the Catholics. He is best known in England by his *Consolations against the Fears of Death*, which work was translated, and is often printed. He mar-

ried the daughter of a rich merchant at Paris, by whom he had 16 children. His third son, professor of physic at Leyden, was physician to the prince and princess of Orange before their accession to the crown of England. Bayle has given him a high character. Mr Dreincourt died in 1660.

Drench
Dresden.

DRENCH, among farriers, a physical potion for horses. The ingredient for this purpose are to be beat coarsely, and either mingled with a decoction or with wine. Then let all infuse about a quarter of an hour, and give it to the horse with a horn after he has been tied up two hours to the rack.

DREPANE, the ancient name of Corcyra, from the curvity of its figure, resembling a sickle.

DREPANE, (*Drepanum*), in *Ancient Geography*, a town of Bithynia, situated between the Sinus Astacenus and the Bosphorus Thracius; called *Helenopolis* by Constantine, in honour of his mother (Nicephorus Callistus).

DREPANUM, in *Ancient Geography*, the promontory Rhium in Achaia; so called because bent in the manner of a sickle. Another *Drepanum* on the Arabic gulf, on the side of Egypt. A third on the north side of Crete, situated between Cydonia and the Sinus Amphimallus. A fourth on the west side of Cyprus. A fifth, a promontory of Cyrenaica, on the Mediterranean.

DREPANUM, -i; or *Drepana*, -orum; a town and port on the west side of Sicily, and to the west of Mount Eryx: *Drepanitani* the people. Now *Trepano*, a city and port town on the westmost point of Sicily. E. Long. 12. 8. N. Lat. 38. 0.

DRESDEN, the capital city of the electorate of Saxony in Germany. It is seated on the river Elbe, which divides it into two parts. One part is called *Old Dresden*, and the other the *New Town*, in the German language *New Stadt*. They are joined together by a stone bridge, supported by 19 piers, and 630 paces in length. As this bridge was too narrow for the crowds of people that were continually passing and repassing, King Augustus in 1730, caused two walks for foot passengers to be built, one on each side, in a very wonderful manner; the one for those that go into the city, and the other for those that return back. These are bordered with iron pallisadoes of curious workmanship. Dresden is surrounded by strong and handsome fortifications; and contains, according to the latest accounts, 110,000 inhabitants.

All the buildings of this city are constructed with square freestone, and are almost all of the same height. They have stone from the neighbourhood of Pirna, about ten miles from this city, which is readily brought down the Elbe. In general the houses are high and strong; the streets wide, straight, well paved, clean, and well illuminated in the night; and there are large squares, disposed in such a manner, that Dresden may pass for one of the handsomest cities in the world. The elector's palace is a magnificent structure, and abounds in many valuable curiosities both of nature and art. The collection of pictures is reckoned one of the finest that exists, and is valued at 500,000l.

Above 700 men are here constantly employed in the porcelain manufacture, the annual expence of which is estimated at no more than 80,000 crowns; and the manufacture yields to the king 200,000 crowns yearly, besides

Dressing. besides the magnificent presents which he occasionally makes, and the large quantity reserved for the use of his household.

The other most considerable article of trade is silver, of which the mines near Fridburg produce every 15 days near the value of 20,000 dollars. The metal is brought into the city in ingots, where it is immediately coined and delivered to the proprietors.

The court of Dresden is one of the most remarkable in Europe for splendour and profusion. Six thousand five hundred ducats are yearly allowed for comfits and similar articles, which is near twice as much as the king of Prussia allows for the whole expence of his table. The revenues of the elector are estimated at about 1,576,000l.; which arise from the taxes on lands, and a capitation of six dollars on all males as soon as they commence an apprenticeship or begin to work. People of a higher rank are taxed according to their class, and are liable to be called to account if they assume not an exterior appearance correspondent to the extent of their fortune. Every foreigner pays capitation after residing six months in the country. The Jews are taxed at 50, their wives at 30, and their children at 20 dollars. There is also an excise on all eatables and liquors; and 10 per cent. is levied out of the incomes of the people.

Though this city lies in a low situation, yet it hath agreeable prospects. It is supplied with a prodigious quantity of provisions, not only out of the neighbourhood, but from Bohemia, which are brought every market day, which is once a-week. E. Long. 13. 34. N. Lat. 51. 12.

DRESSING of HEMP and FLAX. See *FLAX-Dressing*.

DRESSING of Meats, the preparing them for food by means of culinary fire.

The design of dressing is to loosen the compages or texture of the flesh, and dispose it for dissolution and digestion in the stomach. Flesh not being a proper food without dressing, is alleged as an argument that man was not intended by nature for a carnivorous animal.

The usual operations are roasting, boiling, and stewing.—In roasting, it is observed, meat will bear a much greater and longer heat than either in boiling or stewing; and in boiling, greater and longer than in stewing. The reason is, that roasting being performed in the open air, as the parts begin externally to warm, they extend and dilate, and so gradually let out part of the rarefied included air, by which means the internal succussions, on which the dissolution depends, are much weakened and abated. Boiling being performed in water, the pressure is greater, and consequently the succussions to lift up the weight are proportionably strong; by which means the coction is hastened: and even in this way there are great differences; for the greater the weight of water, the sooner is the business done.

In stewing, though the heat be infinitely short of what is employed in the other ways, the operation is much more quick, because performed in a close vessel, and full; by which means the succussions are oftener repeated, and more strongly reverberated. Hence the force of Papin's digester; and hence an illustration of the operation of digestion.

VOL. VII. Part I.

Boiling, Dr Cheyne observes, draws more of the rank strong juices from meat, and leaves it less nutritive, more diluted, lighter, and easier of digestion: roasting, on the other hand, leaves it fuller of the strong nutritive juices, harder to digest, and needing more dilution. Strong, grown, and adult animal food, therefore, should be boiled; and the younger and tenderer roasted.

DRESSING, in *Surgery*, the treatment of a wound or any disordered part. The apparatus of dressing consists of dossils, tents, plasters, compresses, bandages, bands, ligatures, and strings. See *SURGERY Index*.

DREVET, PETER, the Younger, an eminent French engraver, was a member of the royal academy of painting and sculpture; and died at Paris in 1739, at 42 years of age. His portraits are neat and elegant; but laboured to the last degree. He particularly excels in representing lace, silk, fur, velvet, and other ornamental parts of dress. His father was excellent in the same art; and had instructed, but was surpassed by the son. The younger Drevet did not confine himself to portraits. We have several historical prints by him, which in point of neatness and exquisite workmanship are scarcely to be equalled. His most esteemed and best historical print is very valuable; but the first impressions of it are rarely to be met with: it is, The Presentation of Christ in the Temple; a very large plate, lengthwise, from Louis de Bologna. The following deserve also to be particularized: The Meeting of Abraham's Servant with Rebecca at the Well; a large upright plate, from An. Coypel: and Abraham, with his son Isaac on the Altar, the same, from the same, date 1707; the first impressions of which are before the work upon the right thigh of Isaac was altered, the curved lines from the button almost down to the knee being in those impressions arched downwards, but in posterior ones arched upwards. Among his portraits, the two following are justly held in the highest estimation: M. Bossuet bishop of Meaux; a whole length figure standing, a middling sized upright plate, from Rigaud: and Samuel Bernard; a whole length figure sitting in a chair, a large upright plate. The first impressions of the last are, before the words *Conseiller d'Etat* were inserted upon the plate.

DREUX, a town in the Isle of France, remarkable for its antiquities; and for the battle which was fought in December 1562 between the Papists and the Protestants, in which the latter were defeated. Some think it took its name from the priests of Gaul, called the *Druids*, in the times of Paganism. It consists of two parishes, St Stephen's and Notre Dame, called the *great church*, which is pretty well built. It is seated on the river Blaise, at the foot of a mountain, on which is a ruined castle. E. Long. 1. 27. N. Lat. 48. 44.

DRIEPER, or DNIEPER, a river of Russia, which rises in the forest of Volkonski, near the source of the Volga, about 100 miles from Smolensko. It passes by Smolensko and Mohilef, separates the Ukraine from Poland, flows by Kiof, and falls into the Black sea between Oszakof and Kinburn. By the acquisition of the province of Mohilef, its whole course is now included within the Russian territories. It begins to be navigable at a little distance above Smolensko, though

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in some seasons of the year it is so shallow near the town, that the goods must be transported upon rafts and small flat-bottomed boats.

DRIFT, in *Navigation*, the angle which the line of a ship's motion makes with the nearest meridian, when she drives with her side to the wind and waves, and is not governed by the power of the helm: it also implies the distance which the ship drives on that line.

A ship's way is only called *drift* in a storm; and then when it blows so vehemently as to prevent her from carrying any sail, or at least restrains her to such a portion of sail as may be necessary to keep her sufficiently inclined to one side, that she may not be dismasted by her violent labouring produced by the turbulence of the sea.

DRIFT, in mining, a passage cut out under the earth betwixt shaft and shaft, or turn and turn; or a passage or way wrought under the earth to the end of a meer of ground, or part of a meer.

DRIFT-Sail, a sail used under water, veered out right a-head by sheets, as other sails are. It serves to keep the ship's head right upon the sea in a storm, and to hinder her from driving too fast in a current.

DRILL, in *Mechanics*, a small instrument for making such holes as punches will not conveniently serve for. Drills are of various sizes, and are chiefly used by smiths and turners.

DRILL, or *Drill-Box*, a name given to an instrument for sowing land in the new method of horsehoeing husbandry. See *AGRICULTURE Index*.

DRILL-Sowing, a method of sowing grain or seed of any kind, so that it may all be at a proper depth in the earth, which is necessary to its producing healthful and vigorous plants. For this purpose a variety of drill ploughs have been invented and recommended. See *AGRICULTURE Index*.

DRILLING is popularly used for exercising soldiers. The word is derived from the French *drille*, which signifies a *raw soldier*.

DRIMYS; a genus of plants changed by Murray, in the 14th edit. of *Sylv. Veget.* to *WINTERA*; which see in *BOTANY Index*.

DRINK, a part of our ordinary food in a liquid form. See *FOOD*.

The general use of drink is to supply fluid; facilitate solution; in consequence of that, to expedite the evacuation of the stomach, and promote the progress of the aliment through the intestines: for, by the contraction of the longitudinal fibres of the stomach, the pylorus is drawn up, and nothing but fluid can pass; which, by its bulk, makes a hurried progress through the intestines, and so determines a greater excretion by stool, as less then can be absorbed by the lacteals. Hence a large quantity of common water has been found purgative; and, *ceteris paribus*, that aliment which is accompanied with the largest proportion of drink, makes the largest evacuation by stool. Here a question has arisen, about where the feculent part of the aliment is first remarkably collected. It is commonly thought to be in the great guts: but undoubtedly it often begins in the lower part of the ileum, especially when the drink is in a small proportion, and when the progress of the aliment is slow; for when the contents of the guts are very fluid, they are quickly pushed on, and reach the great guts before they de-

posite any feculency. Another effect of drink is, to facilitate the mixture of the lymph, refluent from every part of the system, with the chyle. In the blood-vessels, where all must be kept fluid in order to proper mixture, drink increases the fluidity, and gives tension, by its bulk, without concomitant acrimony or too much elasticity, and so strength and oscillatory motion: hence drink contributes to sanguification, as sometimes food gives too dense a nutriment to be acted upon by the solids; and hence also we can see how drink promotes the secretions. These are the effects of drink in general; but what has been said must be taken with some limitations; for the more liquid the food, it is sooner evacuated, and less nourishment is extracted. Hence drink is, in some degree, opposed to nourishment; and so, *ceteris paribus*, those who use least drink are most nourished.

All the effects of drink above mentioned are produced by simple water; and it may be said, that other liquors are fit for drink in proportion to the water they contain. Water, when used as drink is often impregnated with vegetable and farinaceous substances; but, as drinks, these impregnations are of little consequence: they add, indeed, a little nourishment; but this is not to be regarded in a healthy state. Sometimes we impregnate water with the *fructus acido-dulces*; and then, indeed, it acquires other qualities, of considerable use in the animal economy. All drinks, however, may be reduced to two heads: first, pure water, or where the additional substances give no additional virtue; secondly, the *fermentata*. Of the first we have already spoken; and the latter have not only the qualities of the first, but also qualities peculiar to themselves.

Fermented liquors are more or less poignant to the taste, and better calculated to quench thirst. Thirst may be owing to various causes: First, To defect of fluid in the system, which occasions a scanty secretion in the mouth, fauces, and stomach; the dryness of the mouth and fauces will also in this case be increased, by their continual exposure to the perpetual flux and reflux of the evaporating air. Secondly, Thirst depends on a large proportion of solid viscid food. Thirdly, On an alkalescent aliment, especially if it has attained any thing of the putrefactive taint. Fourthly, On the heat of the system; but this seems to operate in the same manner as the first cause, giving a sense of dryness from its dissipation of the fluids. The fermented liquors are peculiarly adapted for obviating all these causes; stimulating the mouth, fauces, and stomach, to throw out the saliva and gastric liquor by their poignancy: by their acescency they are fitted to destroy alkalescent acrimony, to quench thirst from that cause: by their fluidity they dilute viscid food; though here, indeed, they answer no better than common water. In two ways they promote the evacuation by stool, and progress through the intestines: first, by their fluidity and bulk; secondly, by their acescency, which, uniting with the bile, forms the peculiar stimulus formerly mentioned. Carried into the blood-vessels, in so far as they retain any of the saline nature, they stimulate the excretories, and promote urine and sweat; correcting thus alkalescency, not only by mixture, but dissipation of the degenerated fluids.

Many physicians, in treating of fermented liquors, have

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have only mentioned these qualities, rejecting their nutritious virtue, which certainly ought to be taken in; though by expediting the evacuation by stool they make less of the nutritious parts of the aliment to be taken up, and by stimulating the excretories make these nutritious parts to be for a shorter time in the system. All these and many more effects arise from fermented liquors. Their acescency sometimes promotes the disease of acescency, by increasing that of vegetables, acting as a ferment, and so producing flatulency, purging, cholera, &c. : so that, with vegetable aliment, as little drink is necessary, the most innocent is pure water; and it is only with animal food that fermented liquors are necessary. In warmer climates, *fermentate* would seem necessary to obviate alkalescency and heat. But it should be considered, that though fermented liquors contain an acid, yet they also contain alcohol; which, though it adds stimulus to the stomach, yet is extremely hurtful in the warmer climates, and wherever alkalescency prevails in the system. Nature in these climates has given men an appetite for water impregnated with acid fruits, *e. g.* sherbet: but the use of this needs caution, as in these countries they are apt to shun animal food, using too much of the vegetable, and often thus causing dangerous refrigerations, choleras, diarrhoeas, &c.

Of varieties of fermented liquors. We shall only mention here the chief heads on which these varieties depend. First, They are owing to the quality of the subject, as more or less viscid; and to its capacity also of undergoing an active fermentation, although perhaps the more viscid be more nutritious. Hence the difference between ales and wines; by the first meaning fermented liquors from *farinacea*, by the second from the fruits of plants. It depends, secondly, On the acerbity, acidity, nature, and maturation, of the fruit. Thirdly, The variety depends on the conduct of the fermentation. In general, fermentation is progressive, being at first active and rapid, detaching the fixed air or *gas sylvestre*, at the same time acquiring more acid than before. These qualities of flatulency and acidity remain for some time: but as the fermentation goes on, the liquor becomes more perfect, no air is detached, and alcohol is produced; so that fermented liquors differ according to the progress of the fermentation, and have different effects on the system. When fermentation is stopped before it comes to maturity, though naturally it proceeds in this way, yet by addition of new ferment it may again be renewed with a turbid intestine motion.

DRIVERS, among sportsmen, a machine for driving pheasant powns, consisting of good strong oster wands, such as the basketmakers use; these are to be set in a handle, and twisted or bound with small osiers in two or three places. With this instrument the sportsman drives whole eyes of young powns into his nets. See the next article.

DRIVING, among sportsmen, a method of taking pheasant powns. It is thus: The sportsman finds out the haunts of these birds; and having fixed his nets there, he calls upon them together by a pheasant call, imitating the voice of the dam; after this he makes a noise with his driver, which will make them run a little way forward in a cluster; and this he is to repeat till he has made sure of them, which an expert

sportsman never fails to do, by driving them into his nets.

DRIVING, in *Metallurgy*, is said of silver, when, in the operation of refining, the lead being burnt away, the remaining copper rises upon its surface in red fiery bubbles.

DRIVING, in the sea language, is said of a ship, when an anchor being let fall will not hold her fast, nor prevent her sailing away with the wind or tide. The best help in this case is to let fall more anchors, or to veer out more cable; for the more cable she has out, the safer she rides. When a ship is a-hull or a-try, they say she drives to leeward.

DROGHEDA, by the English called *Tredab*, a town of Ireland, in the province of Leinster and county of Lowth, and situated on the bay of the same name, in W. Long. 6. 17. N. Lat. 53. 45. It was formerly very remarkable for its situation and strength. In consequence of this it was much distinguished by the old English monarchs. Edward II. granted it a market and fair; and to these were added other great privileges in succeeding ages, particularly the right of coinage. It was bravely defended against the rebels in 1641. After the cessation of arms it was taken by the duke of Ormond and the earl of Inchiquin; but was retaken by Cromwell in 1649. At this time it suffered so much, that for a long time after it remained almost in ruins. The buildings were exceedingly shattered; and the town being taken by storm, not only the garrison, but the inhabitants, men, women, and children, were mostly put to the sword. By degrees, however, it recovered, and is at present a large and populous place. It is a town and county; and as such sends two representatives to parliament. It has a great share of inland trade, and an advantageous commerce with England; and though the port is but indifferent and narrow at its entrance, with a bar over which ships of burden cannot pass but at high water, yet a great deal of business is done; so that, from a low and declining port, it is now become rich and thriving.

Drogheda is perhaps one of the strongest instances that can be mentioned of the inestimable benefit of a river in any degree navigable; for though the Boyne is not capable of carrying vessels bigger than barges or pretty large boats, yet the conveniency that this affords of conveying coals by water carriage through a great extent of country, introduced a correspondence between this place and Whitehaven in Cumberland, to which the revival of its commerce has been in a great measure owing.

DROITWITCH, a town of Worcestershire in England, noted for excellent white salt made from the salt springs in its neighbourhood. It sends two members to parliament. W. Long. 2. 16. N. Lat. 52. 20.

DROMEDARY. See *CAMELUS*, *MAMMALIA* *Index*.

DROMORE, a town of Ireland, in the county of Down. It is a very ancient town, and the seat of a bishopric. The see was founded by St Colman in the 6th century. It was refounded by King James I. who, by his charters (now preserved in the Rolls office) granted it very great and uncommon privileges. Among other marks of royal favour, he distinguishes the bishops of this see by the style of "A. B. by Divine Providence bishop of Dromore:" whereas all other

Drone.

bishops in Ireland, except those of Meath and Kildare, are styled, "by Divine Permission." This fee, although the least in its extent, is so complete and perfect in its endowment and jurisdiction, that it need not envy the greatest and most opulent.

DRONE, a kind of large bees which make their appearance in hives about the month of May, but never work nor prepare any honey: and are at last all killed by the rest. Under the article BEE, N^o 20 *et seq.* we have given an account of the experiments of Messrs Debraw and Schirach concerning these animals: but in a Treatise upon Bees and their Management by Mr Bonner near Berwick on Tweed, who has made the management of bees his study for a great number of years, this author differs from the opinions of the above-mentioned gentlemen for the following reasons, which we shall give in his own words. Having mentioned the opinions of Mr Debraw concerning the little drones mentioned in the article above mentioned, he proceeds thus:

"1. Can it be thought that the prying eyes of multitudes in many generations should have escaped seeing those little drones (they being, according to his account, vastly numerous) thrust their posterior parts into the cells? Yet none ever saw them do it except himself; while many have seen the queen do it, though but a single bee.

"2. It is well known the queen is very long behind the wings, wise nature having made her so, in order that she might thrust her posterior part into the cells, and yet her wings scarcely touch them, nor receive the least injury. If these imaginary little drones had to thrust their posterior parts into the cells in the same manner as the queen, certainly their wings would have been made in the same manner short, and their posterior parts long and taper, which is not the case. Whereas were a bee of any kind (the queen excepted) to thrust its hinder part into a common cell, its wings or coats would come over its head, and be antic-like, and injure both them and its body. Besides, I scarcely think they could get into the common cells that way at any rate for want of room.

"3. Mr Debraw grants, that without a queen or eggs bees will not begin to work, as well knowing they cannot propagate their species without her; and yet he says, those bees which wanted little drones began to work, and the queen laid eggs, and all went forward, till they were not impregnated, and then they gave over work, and deserted the hive. Certainly those sagacious creatures would have been as sensible that they wanted drones at the very first, when they were put into the hive, and that they could not do without them, as they are sensible when they want a queen, and that it is needless to begin work without her; and it might be added, that two different kinds of drones in one hive does not appear to be probable, or serve any end.

"But I shall narrate some of my own experiments on that head, which will put it, I hope, beyond dispute: On September 1st, I had a hive breeding fast; I took out all her bees (among which were only four large drones, which I killed), and I put them in a hive that had nothing in her but empty combs: I waited ten days, when, by looking between the combs, I saw her have new sealed up maggots in her cells. I then took

all her bees out, and shook them into a tub full of water, and recovered them gradually; and when recovering, I pressed every one of them, in order to see if I could find any of those little drones, but could not find one; but all and every one of them had stings; they were in number 3000. After which I searched the hive I took them out of, and cut out all her combs that had eggs in them, and found they had new laid eggs, four days old eggs, and maggots in them. I then recovered the queen and all the bees, and put in the same hive again, which had not an egg in her now, and waited other twenty days, and saw her in fine days working very well; a sure indication she was breeding again. I then turned her up, and cut out one of her brood combs, and saw in it new laid eggs, four days old eggs, and maggots and some young almost fit for emerging out of their cells.

"The very same day I made a further experiment: I had a hive which I saw had some brood combs in her, but she had not had a large drone for four weeks before in her; she had not above 500 bees in her, which favoured me, because few in number. I took the hive into a close place in my house, in order that not a single bee should escape me; I then took all the bees out of her, and immersed them in water; and when recovering, I pressed every one of them, and each bee had a sting, as in the former experiment.

"I think the above experiments may satisfy any judicious person, that there is no such thing in being as little drones, unless in Mr Debraw's brain. And if Mr Debraw, who can find 57 in a small swarm of bees, will send me the odd seven, I will send him one of my best hives for them, and he will scarcely think he is ill paid. I add, I never saw a hive in spring, however few bees in her, but she bred some, if she had a queen, though to be sure few in proportion to her bees.

"By this time the reader will be very ready, no doubt, to ask me the use of the drones. I beg to be excused on that head, as I have not the least idea of their use in a hive; they do not fecundate the queen, for she can lay and breed too though she never see them. Their heat does not appear to me to be necessary for hatching the young, as they are mostly hatched before any are bred in a hive; and when drones are in the hive, the weather is so warm, and so many common bees in it, that they appear to have rather too much heat, by their lying out of the hives often.

"I have many times had good hives with few or no drones in them all the year; and Keys is quite wrong when he says a top swarm will not do without drones in her; for I am positive to the contrary, as in the summer 1785 I took off four swarms of mine own in one day with not a single drone in any of them, and they all thrive well, and bred drones in themselves about four weeks after.

"Although I cannot say what use the drones are of to a hive (unless it be to help away with a great deal of her honey, which they are very good at), yet the best hives have them soonest in the year, they generally appearing in such about the latter end of May, and the bees put a period to their lives about Lammas, at which time I give them all the assistance I can. The way

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way they kill them is thus: They pull and bite them with their teeth, and sting them also. I have seen great havock make of them in one day, as appeared by their lying dead before the door of the hive. But their most effectual way of killing them is their banishing them from the honeycombs; upon which the drones betake themselves to the under edges of the hives in great numbers, and to the board the hive stands on; and sometimes, though rare, I have even seen them come to the outside of the hive, and cluster there about the bulk of a man's hand. When they are banished thus, they are very dull and lifeless: and I have lifted up a hive from the board, and there they would have been sitting close on it, with scarcely three or four common bees among them; and I have trod to death 40 or more at a time.

"We may now take a view of the disadvantages attending the old, and also Mr Debraw's principles on bees, were they true; and next see how a hive of bees may be preserved from coming to ruin, according to my sentiments on them.

"1. The old principles on bees say, that without a queen or royal cell be in a hive, it will come to ruin.

"2. Mr Debraw's principles say, that without little drones be in a hive it will come to ruin.

"3. I say, if a hive have only new laid eggs in her (which may be easily got the greatest part of the year, in case she have none of her own) and common bees, she will find herself a queen, and so thrive.

"According to the old principles, it is easily seen that, in case a hive lose her queen, when there is no royal cell in her, and no queen can be got to put to her (neither of which can be expected but in June and July), she is entirely ruined.

"According to the Frenchman's scheme, there must be drones in a hive at all times of the year to fecundate the eggs, otherwise the hive is useless. Supposing his sentiments to be true (which, however, can by no means be admitted, seeing there is no such thing as little drones), how perplexed would the owner be to know when there were little drones in the hive! When he wanted to make an artificial swarm, he might bring off a queen and common bees with her; but how should he come to know whether there were any, or a sufficient quantity, of little drones among them, as they cannot be distinguished from the commons but by immersion and pressure, which would be intolerably troublesome, and next to killing the bees, and not at all practicable? All that could be done would be to hope the best, that there were little drones in her at any time of the year.

"I say, if a queen die in a hive, and that hive have some new-laid eggs in her, or some put to her, in case she have none of her own, she will nourish up some of these eggs to be a queen to herself: and also by taking out a queen and some commons out of a hive (without a single drone, large or small), and putting them in an empty hive, will make a swarm, and the old hive will breed herself a queen again, if she have eggs in her."

DRONE-FLY, a two-winged insect, extremely like the common drone bee, whence also the name.

DROPS, in *Meteorology*, small spherical bodies which the particles of fluids spontaneously form themselves into when let fall from any height. The spher-

ical figure, the Newtonian philosophers demonstrate to be the effect of corpuscular attraction; for considering that the attractive force of one single particle of a fluid is equally exerted to an equal distance, it must follow that other fluid particles are on every side drawn to it, and will therefore take their places at an equal distance from it, and consequently form a round superficies. See the article *ATTRACTION, FLUID, and RAIN*.

DROPS, in *Medicine*, a liquid remedy, the dose of which is estimated by a certain number of drops.

English Drops, (*Guttae Arglicane*), a name given to a chemical preparation esteemed of great virtue against vapours and lethargic affections, and purchased at 500*l.* by King Charles II. from the inventor Dr Goddard. The medicine appeared to be only a spirit drawn by the retort from raw silk, and afterwards rectified with oil of cinnamon, or any other essential oil; and was in reality no better than the common sal volatile oleosum, or any of the volatile spirits impregnated with an essential oil, except that it was less disagreeable than any of them to the taste.

DROPSY, in *Medicine*, an unnatural collection of water in any part of the body. See *MEDICINE Index*.

DROPPWORT. See *FILIPENDULA, BOTANY Index*.

Water-DROPPWORT. See *OENANTHE, BOTANY Index*.

DROSERA, ROS SOLIS, or Sun-Dew. See *BOTANY Index*.

DROWNING, signifies the extinction of life by a total immersion in water.

In some respects, there seems to be a great similarity between the death occasioned by immersion in water, and that by strangulation, suffocation by fixed air, apoplexies, epilepsies, sudden faintings, violent shocks of electricity, or even violent falls and bruises. Physicians, however, are not agreed with regard to the nature of the injury done to the animal system in any or all of these accidents. It is indeed certain, that in all the cases above mentioned, particularly in drowning, there is very often such a suspension of the vital powers as to us hath the appearance of a total extinction of them; while yet they may be again set in motion, and the person restored to life, after a much longer submerision than hath been generally thought capable of producing absolute death. It were to be wished, however, that, as it is now universally allowed, that drowning is only a suspension of the action of the vital powers, physicians could as unanimously determine the means by which these powers are suspended; because on a knowledge of these means, the methods to be used for recovering drowned persons must certainly depend.

Dr de Haen, who hath written a treatise on this subject, ascribes this diversity of opinion among the physicians to their being so ready to draw general conclusions from a few experiments. Some, having never found water in the lungs, have thought that it never was there; and others, from its presence, have drawn a contrary conclusion. Some have ascribed the death which happens in cases of drowning to that species of apoplexy which arises from a great fulness of the stomach. But this opinion our author rejects, because in 13 dogs which he had drowned and afterwards dissected, no signs of such a fulness appeared. Another reason is drawn from the want of the common marks

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Drowning. of apoplexy on the dissection of the brain, and from the actual presence of water in the lungs. He is of opinion, that the death of drowned persons happens in consequence of water getting into the lungs, and stopping the blood in the arteries. He then discusses the question how far the blowing of air into the lungs is useful in recovering drowned people. If their death is to be ascribed to the water entering the lungs, this practice, he observes, must be hurtful, as it will increase the pressure on the blood-vessels, or may even force the water into them; which, on the authority of Lewis's experiments, he alleges is possible. But, in spite of this reasoning, he asserts, that from experience it has been found useful. He allows, that the practice of suspending drowned people by the feet must be hurtful, by determining the blood too much to the head; but he observes, that remedies in some respects hurtful may be used when the advantages derived from them preponderate; and is of opinion, that the practice above mentioned may be useful by agitating the viscera against each other, and thus renewing their motions. Cutting the larynx in order to admit air more freely to the lungs, he reckons to be of little or no use; but acknowledges, however, that it may sometimes prove beneficial on account of the irritation occasioned by the operation.

Dr Cullen, in his Letter to Lord Cathcart concerning the recovery of persons drowned and seemingly dead, tells us, that "From the dissection of drowned men, and other animals, it is known, that very often the water does not enter into the cavity of the lungs, nor even into the stomach, in any quantity to do hurt to the system; and, in general, it is known, that, in most cases, no hurt is done to the organization of the vital parts. It is therefore probable, that the death which ensues, or seems to ensue, in drowned persons, is owing to the stoppage of respiration, and to the ceasing, in consequence, of the circulation of the blood, whereby the body loses its heat, and, with that, the activity of the vital principle."

In the Phil. Transf. vol. lxxvi. Mr Hunter gives the following theory. The loss of motion in drowning seems to arise from the loss of respiration; and the immediate effect this has upon the other vital motions of the animal, at least this privation of breathing, appears to be the first cause of the heart's motion ceasing. It is most probable, therefore, Mr Hunter observes, that the restoration of breathing is all that is necessary to restore the heart's motion; for if a sufficiency of life still remains to produce that effect, we may suppose every part equally ready to move the very instant in which the action of the heart takes place, their actions depending so much upon it. What makes it very probable, that the principal effect depends upon throwing air into the lungs, is, that children in the birth, when too much time has been spent after the loss of that life which is peculiar to the fœtus, lose altogether the disposition for the new life. In such cases there is a total suspension of the actions of life; the child remains to all appearance dead; and would die, if air was not thrown into its lungs, and the first principle of action by that means restored. To put this in a clearer light, Mr Hunter gives the result of some experiments made on a dog in 1755.—A pair of double bellows were provided, which were so constructed, that

by one action air was thrown into the lungs, and by Drowning. the other the air was sucked out which had been thrown in by the former, without mixing them together. The muzzle of these bellows was fixed into the trachea of a dog, and by working them he was kept perfectly alive. While this artificial breathing was going on, the sternum was taken off, so that the heart and lungs were exposed to view. The heart then continued to act as before, only the frequency of its action was greatly increased. Mr Hunter then stopped the motion of the bellows; and observed that the contraction of the heart became gradually weaker and less frequent, till it left off moving altogether; but by renewing the operation, the motion of the heart also revived, and soon became as strong and frequent as before. This process was repeated upon the same dog ten times; sometimes stopping for five, eight, or ten minutes. Mr Hunter observed, that every time he left off working the bellows, the heart became extremely turgid with blood, and the blood in the left side became as dark as that in the right, which was not the case when the bellows were working. These situations of the animal, he observes, seem to be exactly similar to drowning.

Dr Edmund Goodwyn, in a treatise lately published on this subject, has endeavoured to ascertain the effects of submerision upon living animals in a more accurate manner than had hitherto been done. His first care was to determine the symptoms which took place before death; and to observe these, he procured a large glass bell in which the animals were to be immersed. Having inverted, and filled this with water, he put into it several cats, dogs, rabbits, and smaller animals, confining them among the water till they were apparently dead. In these experiments he observed, that immediately after submerision the pulse became weak and frequent; there was an apparent anxiety about the breast, and struggling to relieve it. In these struggles the animal rose to the top of the water, throwing out a quantity of air from the lungs. After this the anxiety increases, the pulse becomes weaker, and the struggles more violent; he rises again to the surface, throws out more air from the lungs, and in his efforts to inspire, a quantity of water commonly passes into the mouth. The skin about the face and lips then becomes blue, the pulse ceases, the sphincters are relaxed, and the animal falls down without sense or motion. On dissecting the bodies of drowned animals, our author met with the following appearances: 1. The external surface of the brain was darker, but the vessels of it were not more turgid than usual, nor was there any appearance of extravasation. 2. The pulmonary arteries and veins were filled with black blood, and the lungs themselves contained some frothy liquor. 3. Notwithstanding these symptoms, the right auricle and ventricle were still contracting and dilating; the left sinus venosus and auricle moving feebly, but the left ventricle at rest. 4. The right and left auricles of the heart, the right ventricle, and the left sinus venosus, were filled with black blood; but the last ventricle only half filled with the same, and a quantity of the same black blood was also contained in the smaller branches of the arteries proceeding from the left ventricle.

This investigation was followed by a most careful and

Drowning and ingenious inquiry concerning the causes of the symptoms already related. To find out whether or not the entrance of water into the lungs was the cause, or whether water really entered the lungs in these cases or not, he drowned several animals among ink; and by inspecting their bodies, found, that though water really did enter, it was in such small quantity that it could not be supposed capable of producing such violent effects. To ascertain this, however, more exactly than could be done by the ink, he drowned other animals in quicksilver; which, by reason of its not being miscible with the animal fluids, could be more accurately collected. By these it appeared that no more than five drachms of the fluid in which a cat was immersed entered her lungs in the time of drowning; and to determine whether or not this could be the occasion of the animal's death, he made the following experiment: Having confined a cat in an erect posture, he made a small opening in the trachea, by cutting one of the cartilaginous rings; and through this opening he introduced two ounces of water into the lungs. The only consequences were a difficulty of breathing and weak pulse; but these soon abated, and it lived several hours afterwards without any apparent inconvenience. On strangling it he found two ounces and a half of water in the lungs. On repeating the experiment with other fluids, he found the difficulty of breathing and alteration in the pulse somewhat greater; but in these instances also they abated in a few hours; and when the animals were strangled, the lungs were found to contain four ounces of fluid.

From all these experiments Dr Goodwyn draws the following conclusions: 1. "A small quantity of fluid usually passes into the lungs in drowning. 2. This water enters the lungs during the efforts to inspire; and mixing with the pulmonary mucus, occasions the frothy appearance mentioned by authors." This naturally leads to an investigation of the uses of respiration, and the effects of the air upon the blood and lungs in that action, which our author traces with great accuracy and very convincing experiments. He begins with attempting to determine the quantity of air drawn in at each inspiration, with the proportional quantity left after expiration. The experiments by which he endeavoured to ascertain these quantities seem to be more uncertain than the others, as indeed there are not data sufficient for them. From such as he had an opportunity of making, however, the following conclusions were deduced: 1. "The lungs contain 109 cubic inches of air after a complete expiration; and this quantity receives an additional quantity of 14 cubic inches during each inspiration. 2. The dilatation of the lungs after expiration is to their dilatation after inspiration as 109 to 123. 3. The blood circulates through the pulmonary vessels in all the degrees of natural respiration. 4. The circulation through them, after expiration, is sufficiently free to keep up the health of the system."

The last part of our author's inquiry, viz. concerning the chemical changes produced in the air by respi-

ration, and the effects of the air upon the blood itself, Drowning falls naturally to be considered under the article RESPIRATION: so that here we shall only observe in general, that his experiments evidently show that the disease produced by drowning arises entirely from the exclusion of the atmospheric air or its dephlogisticated part; for which reason he recommends inflating the lungs with that kind of air in preference to any other.

From these different views of this matter, physicians have differed considerably in their account of the methods to be followed in attempting the recovery of drowned persons. De Haen recommends agitation of all kinds; every kind of stimulus applied to the mouth nose, and rectum; bleeding; heat, both by warm clothes and warm water; blowing air into the trachea; stimulants, such as blisters, warm ashes, &c. applied to the head, ankles, thighs, pit of the stomach, and other parts.

Doctor Cullen's observations on this subject are as follow.—"With respect to the particular means to be employed for the recovery of drowned persons, it is to be observed, in the first place, That such as were recommended and practised, upon a supposition that the suffocation was occasioned by the quantity of water taken into the body, and therefore to be evacuated again, were very unhappily advised. The hanging up of persons by the heels, or setting them upon the crown of the head, or rolling the body upon a cask, were generally practised, upon a supposition altogether false; or upon the supposition of a case which, if real, is apprehended to be irrecoverable. At the same time, these practices were always attended with the danger of bursting some vessels in the brain or lungs, and of rendering thereby some cases incurable that were not so from the drowning alone. All such practices, therefore, are now very properly disapproved of and forbidden.

"In those cases in which the body has not been long in the water, and in which therefore the natural heat is not entirely extinguished, nor the irritability of the moving fibres very greatly impaired, it is possible that a good deal of agitation of the body may be the only means necessary to restore the action of the vital organs; but in other cases, where the heat and irritability have ceased to a greater degree, it is to me very doubtful if much agitation can be safe, and if any degree of it can be useful, till the heat and irritability are in some measure restored. In all cases, any violent concussion cannot be safe, and, I believe, is never necessary. It may be proper here to observe also, that in transporting the body from the place where it is taken out of the water, to the place where it may be necessary for applying the proper means of its recovery, all postures exposing to any improper compression, as that of the body's being carried over a man's shoulder, are to be avoided. The body is to be kept stretched out, with the head and upper parts a little raised; and care is to be taken to avoid the neck's being bent much forward. In this manner, laid upon one side, and upon some straw in a cart, it may be most properly conveyed; and the agitation which a pretty brisk motion of the cart may occasion, will, in most cases, do no harm.

"From the account I have given above of the causes,

Drowning. ses, or of the appearances, of death in drowned persons, it is evident, that the first step to be taken for their recovery is to restore the heat of the body, which is absolutely necessary to the activity of the moving fibres. For this purpose, the body, as soon as possible, is to be stripped of its wet clothes, to be well dried, and to be wrapped up in dry, and (if possible) warm, coverings: and it is to be wished, in all cases, as soon as the report of a person's being drowned is heard, that blankets should be immediately carried to the water side; so that, as soon as the body is got out of the water, the change of covering just now mentioned may be instantly made; or, if the body has been naked when drowned, that it may be immediately dried, and defended against the cold of the air. Besides covering the body with blankets, it will be further of advantage, if it can be done without loss of time, to cover the drowned body with a warm shirt or waistcoat immediately taken from a living person.

"When, at the time of a person's being drowned, it happens that the sun shines out very hot, I think there can be no better means of recovering the heat, than by exposing the naked body, in every part, to the heat of the sun; while, at the same time, all other means necessary or useful for the recovery of life are also employed.

"When the heat of the sun cannot be employed, the body should be immediately transported to the nearest house that can be got convenient for the purpose: the fittest will be one that has a tolerably large chamber, in which a fire is ready, or can be made; and if possible, the house should afford another chamber, in which also a fire can be provided.

"When the drowned body is brought into such house, and care is at the same time taken that no more people are admitted than are absolutely necessary to the service of the drowned person, every endeavour must be immediately employed for recovering the heat of the body, and that by different measures, as circumstances shall direct.

"If, in the neighbourhood of the place, there be any brewery, distillery, dyery, or fabric which gives an opportunity of immediately obtaining a quantity of warm water and a convenient vessel, there is nothing more proper than immersing the body in a warm bath. Even where a sufficient quantity of warm water cannot be had at once, the bath may be still practised, if the accident has happened in or very near a town or village, when a great many fires may be at once employed in heating small quantities of water; for in this way the necessary quantity may be soon obtained. To encourage this practice, it is to be observed, that one part of boiling water is more than sufficient to give the necessary heat to two parts of spring or sea water, as it is not proper to apply the bath at first very warm, nor even of the ordinary heat of the human body, but somewhat under it; and, by the addition of warm water, to bring it gradually to a heat very little above it.

"If the drowned body be of no great bulk, it may be conveniently warmed by a person's lying down in bed with it, and taking it near to their naked body, changing the position of it frequently, and at the same time chafing and rubbing with warm cloths the

parts which are not immediately applied to their warm Drowning- body.

"If none of these measures can be conveniently practised, the body is to be laid upon a bed before a moderate fire, and frequently turned, to expose the different parts of it; and thus, by the heat of the fire gradually applied, and by rubbing the body well with coarse towels, or other cloths well warmed, pains are to be taken for restoring its heat. This will be promoted by warm cloths applied and frequently renewed under the hams and armpits; and by hot bricks, or bottles of warm water, laid to the feet.

"In the practice of rubbing, it has been proposed to moisten the cloths applied with camphorated spirits, or other such stimulating substances; but I think this must prove an impediment to the rubbing; and I would not recommend any practice of this kind, except, perhaps, the application of the vinous spirits of sal ammoniac to the wrists and ankles only.

"For recovering the heat of the body, it has been proposed to cover it all over with warm grains, ashes, sand, or salt; and where these, sufficiently warm, are ready at hand, they may be employed; but it is very seldom they can be obtained, and the application might often interfere with other measures that may be necessary. All therefore that I can propose with respect to the use of these, is to observe, that bags of warm and dry salt may be amongst the most convenient applications to the feet and hands of drowned persons; and the quantity necessary for this purpose may be got pretty quickly by heating the salt in a frying pan over a common fire.

"While these measures are taking for recovering the heat, means are at the same time to be employed for restoring the action of the moving fibres. It is well known, that the intestines are the parts of the body which, both from their internal situation and peculiar constitution, retain the longest their irritability; and therefore, that, in drowned persons, stimulants applied may have more effect upon the intestines than upon other parts. The action, therefore, of the intestines is to be supported or renewed as soon as possible; as the restoring and supporting the action of such a considerable portion of moving fibres as those of the intestines, must contribute greatly to restore the activity of the whole system.

"For exciting the action of the intestines, the most proper mean is, the application of their ordinary stimulus of dilatation; and this is most effectually applied, by forcing a quantity of the air into them by the fundament. Even the throwing in cold air has been found useful: but it will certainly be better if heated air can be employed; and further, if that air can be impregnated with something which, by its acrimony also may be powerful in stimulating the intestines.

"From all these considerations, the smoke of burning tobacco has been most commonly applied, and has upon many occasions proved very effectual. This will be most properly thrown in by a particular apparatus, which, for other purposes as well as this, should be in the hands of every surgeon; or at least should, at the public expence, be at hand in every part of the country where drownings are likely to happen. With regard to the use of it, I have to observe, that till the

Drowning. the tobacco is kindled in a considerable quantity, a great deal of cold air is blown through the box and tube; and as that, as hinted above, is not so proper, care should be taken to have the tobacco very well kindled, and to blow through it very gently, till the heated smoke only passes through. If, upon certain occasions, the apparatus referred to should not be at hand, the measure however may be executed by a common tobacco pipe, in the following manner: A common glyster pipe, that has a bag mounted upon it, is to be introduced into the fundament, and the mouth of the bag is to be applied round the small end of a tobacco pipe. In the bowl of this, tobacco is to be kindled; and, either by a playing card made into a tube and applied round the mouth of the bowl or by applying upon this the bowl of another pipe that is empty, and blowing through it, the smoke may be thus forced into the intestines, and, in a little time, in a considerable quantity.

“ If none of these means for throwing in the smoke can be employed, it may be useful to inject warm water to the quantity of three or four English pints. This may be done by a common glyster bag and pipe, but better by a large syringe; and it may be useful to dissolve in the water some common salt, in the proportion of half an ounce to an English pint; and also, to add to it some wine or brandy.

“ While these measures for recovering the heat of the body and the activity of the moving fibres are employed, and especially after they have been employed for some time, pains are to be taken to complete and finish the business, by restoring the action of the lungs and heart.

“ On this subject, I am obliged to my learned and ingenious colleague Dr Monro, who has made some experiments for ascertaining the best manner of inflating the lungs of drowned persons. By these experiments he finds it may be more conveniently done by blowing into one of the nostrils, than by blowing into the mouth. For blowing into the nostril, it is necessary to be provided with a wooden pipe, fitted at one extremity for filling the nostril, and at the other for being blown into by a person's mouth, or for receiving the pipe of a pair of bellows, to be employed for the same purpose. Doctor Monro finds, that a person of ordinary strength can blow into such a pipe, with a sufficient force to inflate the lungs to a considerable degree; and thinks the warm air from the lungs of a living person will be most conveniently employed at first; but when it is not soon effectual in restoring the respiration of the drowned person, and that a longer continuance of the inflation is necessary, it may be proper to employ a pair of bellows, large enough at once to contain the quantity of air necessary to inflate the lungs to a due degree.

“ Whether the blowing in is done by a person's mouth, or by bellows, Dr Monro observes, that the air is ready to pass by the gullet into the stomach; but that this may be prevented, by pressing the lower part of the larynx backwards upon the gullet. To persons of a little knowledge in anatomy, it is to be observed, that the pressure should be only upon the cricoid cartilage, by which the gullet may be straitened, while the passage through the larynx is not interrupted.

Vol. VII. Part I.

Drowning. “ When, by blowing thus into the nostril, it can be perceived, by the raising of the chest or belly, that the lungs are filled with air, the blowing in should cease; and by pressing the breast and belly, the air received into the lungs should be again expelled; then the blowing and expulsion should be again repeated; and thus the practice is to be continued, so as to imitate, as exactly as possible, the alternate motions of natural respiration.

“ It is hardly necessary to observe, that when the blowing into the nostril is practised, the other nostril and the mouth should be accurately closed.

“ If it should happen, that in this practice the air does not seem to pass readily into the lungs, Doctor Monro informs me it is very practicable to introduce directly into the glottis and trachea a crooked tube, such as the catheter used for a male adult. For this he offers the following directions: The surgeon should place himself on the right side of the patient; and, introducing the fore finger of his left hand at the right corner of the patient's mouth, he should push the point of it behind the epiglottis; and using this as a directory, he may enter the catheter, which he holds in his right hand, at the left corner of the patient's mouth, till the end of it is passed beyond the point of his fore finger, and it is then to be let fall, rather than pushed into the glottis; and through this tube, by a proper syringe applied to it, air may be with certainty blown into the lungs. I observe, that some such measure had been proposed by Mons. le Cat in France; but I have not learned that it has ever been put in practice, and I am afraid it may be attended with several difficulties, and must be left to the discretion of surgeons, who may be properly provided and instructed for this purpose.

“ For throwing air with more certainty into the lungs, it has been proposed to open the windpipe in the same manner as is done in the operation which the surgeons call *bronchotomy*, and by this opening to blow into the lungs; and when the blowing into the nostril does not seem to succeed, and a skilful operator is at hand, I allow that the measure may be tried; but I can hardly suppose that it will be of any advantage when the blowing in by the nostril has entirely failed.

“ It is to be hoped, that by blowing into the lungs one way or other, even a quantity of water which had been taken into the lungs may be again washed out; and the same seems to be the only effectual means of washing out that frothy matter which is found to fill the lungs of drowned persons, and which proves, if I mistake not, the most common cause of their mortal suffocation. This practice, therefore, is to be immediately entered upon, and very assiduously continued for an hour or two together.

“ I have now mentioned the measures chiefly to be pursued and depended upon for the recovery of drowned persons; but must still mention some others that may prove considerable helps to it.

“ One of these is, the opening the jugular veins to relieve the congestion, which almost constantly occurs in the veins of the head, and is probably a frequent cause of the death of drowned persons. For relieving this congestion, the drawing some blood from the jugulars, very early, may certainly be of service; and it will be particularly indicated by the livid and purple

U u colour

Drowning. colour of the face. It may even be repeated, according to the effect it seems to have in taking off that suffusion; but when the drowned person is in some measure recovered, and some motion of the blood is restored, it will be proper to be very cautious in making this evacuation, and at least to take care not to push it so far as to weaken too much the recovering, but still weak, powers of life.

“ Another measure for recovering the activity of the vital principle, is the application of certain stimulants to the more sensible parts of the body, such as holding the quicklime spirit of sal ammoniac to the nose, or putting a little of it upon a rag into the nostrils. It has been usual to pour some liquids into the mouth; but it is dangerous to pour in any quantity of liquid, till it appear that the power of swallowing is in some measure restored.

“ When a surgeon is at hand, and is provided with proper apparatus, a crooked pipe may be introduced into the gullet; and by this a gill or two of warm wine may be poured down into the stomach, and probably with advantage. But when no such apparatus is at hand or surgeon to employ it, and the power of swallowing is still doubtful, the trial of pouring liquids into the mouth should be made by a small quantity of warm water alone; and when, from such trial, the power of swallowing shall appear to be recovered, it may then be allowable to favour the further recovery of the person, by pouring in some wine or brandy.— In short, till some marks of the recovery of swallowing and respiration appear, it will not be safe to apply any stimulants to the mouth; excepting that of a few drops of some acrid substance to the tongue, and which are not of bulk enough to slide back upon the glottis: I can think of no stimulant more conveniently and safely to be applied to the mouth and nostrils, than a moderate quantity of tobacco smoke blown into them.

“ Though I do not imagine that drowned persons are ever hurt by the quantity of water taken into their stomach, yet, as a stimulus applied to the stomach, and particularly as the action of vomiting proves a stimulus to the whole system, I can have no objection to the French practice of throwing in an emetic as soon as any swallowing is restored. For this purpose, I would successively throw in some tea-spoonfuls of the ipecacuanha wine; and when it does not interfere with other necessary measures, the fauces may be gently irritated by an oiled feather thrust into them.

“ With regard to the stimulants, I must conclude with observing, That when a body has lain but for a short time in the water, and that therefore its heat and irritability are but little impaired, the application of stimulants alone has been often found effectual for the recovery: but on the contrary, when the body has lain long in the water, and the heat of it is very much extinguished, the application of any other stimulants than that of tobacco smoke to the intestines can be of very little service; and the application of others ought never to interfere with the measures for recovering heat and the motion of respiration.

“ With respect to the whole of these practices, I expect, from the principles upon which they are in

general recommended, it will be understood that they Drowning. are not to be soon discontinued, though their effects do not immediately appear. It is obvious, that, in many cases, it may be long before the heat of the body, and the activity of the vital principle, can be restored, although in a longer time it may very possibly be accomplished. In fact, it has often happened, that though means employed for one hour have not succeeded, the same continued for two or more hours, have at length had the wished-for effects. It should therefore be a constant rule, in this business, that the proper means should be employed for several hours together; unless it happen that, while no symptoms of returning life appear, the symptoms of death shall, at the same time, go on constantly increasing.

“ In the whole of the above I have kept in view chiefly the case of drowned persons; but it will be obvious, that many of the measures proposed will be equally proper and applicable in other cases of suffocation; as those from strangling, the damps of mines, the fumes of charcoal, &c.; and a little attention to the difference of circumstances will lead to the measures most proper to be employed.

Mr Hunter, in the before-mentioned paper, differs pretty considerably from De Haen and Dr Cullen. He observes, that when assistance is soon called after immersion, blowing air into the lungs will in some cases effect a recovery; but when any considerable time has been lost, he advises stimulant medicines, such as the vapour of volatile alkali, to be mixed with the air; which may easily be done, by holding spirits of hartshorn in a cup under the receiver of the bellows. And, as applications of this kind to the olfactory nerves tend greatly to rouse the living principle, and put the muscles of respiration into action, it may probably, therefore, be most proper to have air impregnated in that manner thrown in by the nose. To prevent the stomach and intestines from being too much distended by the air so injected, the larynx is directed to be gently pressed against the œsophagus and spine.

While this business is going on, an assistant should prepare bed clothes, carefully brought to a proper degree of heat. Heat our author considers as congenial with the living principle; increasing the necessity of action, it increases action; cold, on the other hand, lessens the necessity, and of course the action is diminished: to a due degree of heat, therefore, the living principle, he thinks, owes its vigour. From experiments, he says, it appears to be a law in animal bodies, that the degree of heat should bear a proportion to the quantity of life; as life is weakened, this proportion requires great accuracy, while greater powers of life allow it greater latitudes.

After these and several other observations on the same subject, our author proceeds to more particular directions for the management of drowned people.

If bed clothes are put over the person, so as scarce to touch him, steams of volatile alkali, or of warm balsams, may be thrown in, so as to come in contact with many parts of the body. And it might probably be advantageous, Mr Hunter observes, to have steams of the same kind conveyed into the stomach. This, we are told, may be done by a hollow bougie and a syringe: but the operation should be very speedily performed

Drowning. formed, as the instrument, by continuing long in the mouth, might produce sickness, which our author says he would always wish to avoid.

Some of the warm stimulating substances, such as juice of horseradish, peppermint water, and spirits of hartshorn, are directed to be thrown into the stomach in a fluid state, as also to be injected by the anus. Motion possibly may be of service; it may at least be tried: but as it hath less effect than any other of the usually prescribed stimuli, it is directed to be the last part of the process.

The same care in the operator, in regulating the proportion of every one of these means, is here directed, as was formerly given for the application of heat. For every one of them, our author observes, may possibly have the same property of destroying entirely the feeble action which they have excited if administered in too great a quantity: instead, therefore, of increasing and hastening the operations on the first signs of returning life being observed, as is usually done, he desires they may be lessened; and advises their increase to be afterwards proportioned, as nearly as possible, to the quantity of powers as they arise.

When the heart begins to move, the application of air to the lungs should be lessened, that, when the muscles of respiration begin to act, a good deal may be left for them to do.

Mr Hunter absolutely forbids bloodletting in all such cases; for as it not only weakens the animal principle, but lessens life itself, it must consequently, he observes, lessen both the powers and dispositions to action. For the same reason, he is against introducing any thing into the stomach that might produce sickness or vomiting; and, on the same principle, he says, we should avoid throwing tobacco fumes, or any other such articles, up by the anus, as might tend to an evacuation that way.

The following is a description of instruments recommended for such operations by our author.

First, A pair of bellows, so contrived, with two separate cavities, that, by opening them when applied to the nostrils or mouth of a patient, one cavity will be filled with common air, and the other with air sucked out from the lungs, and by shutting them again, the common air will be thrown into the lungs, and that sucked out of the lungs discharged into the room. The pipe of these should be flexible; in length a foot, or a foot and a half; and, at least, three eighths of an inch in width. By this the artificial breathing may be continued, while the other operations, the application of the stimuli to the stomach excepted, are going on, which could not be conveniently done if the muzzle of the bellows were introduced into the nose. The end next the nose should be double, and applied to both nostrils. Secondly, A syringe, with a hollow bougie, or flexible catheter, of sufficient length to go into the stomach, and convey any stimulating matter into it, without affecting the lungs. Thirdly, A pair of small bellows, such as are commonly used in throwing fumes of tobacco up by the anus.

Notwithstanding the differences in theory, however, between the physicians above mentioned, it is certain, that within these few years great numbers of drowned people have been restored to life by a proper use of the remedies we have enumerated, and societies for the re-

covery of drowned persons have been instituted in different places. The first society of this kind was instituted in Holland, where from the great abundance of canals and inland seas, the inhabitants are particularly exposed to accidents by water. In a very few years 150 persons were saved from death by this society; and many of these had continued upwards of an hour without any signs of life, after they had been taken out of the water. The society was instituted at Amsterdam in 1767: and, by an advertisement, informed the inhabitants of the United Provinces of the methods proper to be used on such occasions; offering rewards at the same time to those who should, with or without success, use those methods for recovering persons drowned and seemingly dead. The laudable and humane example of the Dutch was followed in the year 1768 by the magistrates of health in Milan and Venice; afterwards by the magistrates of Hamburg in the year 1771, by those of Paris in the year 1772, and by the magistrates of London in 1774.

The following directions are given for the recovery of drowned persons by the society at London.

I. As soon as the patient is taken out of the water, the wet clothes, if the person is not naked at the time of the accident, should be taken off with all possible expedition on the spot (unless some convenient house be very near), and a great coat or two, or some blankets if convenient, should be wrapped round the body.

II. The patient is to be thus carefully conveyed in the arms of three or four men, or on a bier, to the nearest public or other house, where a good fire, if in the winter season, and a warm bed, can be made ready for its reception. As the body is conveying to this place, a great attention is to be paid to the position of the head; it must be kept supported in a natural and easy posture, not suffered to hang down.

III. In cold or moist weather, the patient is to be laid on a mattress or bed before the fire, but not too near, or in a moderately heated room; in warm and sultry weather, on a bed only. The body is then to be wrapped as expeditiously as possible with a blanket, and thoroughly dried with warm coarse cloths or flannels.

IV. In summer or sultry weather too much air cannot be admitted. For this reason it will be necessary to set open the windows and doors, as cool refreshing air is of the greatest importance in the process of resuscitation.

V. Not more than six persons are to be present to apply the proper means; a greater number will be useless, and may retard, or totally prevent, the restoration of life, by rendering the air of the apartment unwholesome. It will be necessary, therefore, to request the absence of those who attend merely from motives of curiosity.

VI. It will be proper for one of the assistants, with a pair of bellows of the common size, applying the pipe a little way up one nostril, to blow with some force, in order to introduce air into the lungs; at the same time the other nostril and the mouth are to be closed by another assistant, whilst a third person gently presses the chest with his hands, after the lungs are observed to be inflated. By pursuing this process, the noxious and stagnant vapours will be expelled, and natural breathing imitated. If the pipe of the bellows be too large,

Drowning. the air may be blown in at the mouth, the nostrils at the same time being closed, so that it may not escape that way: but the lungs are more easily filled, and natural breathing better imitated, by blowing up the nostril.

VII. Let the body be gently rubbed with common salt, or with flannels, sprinkled with spirits, as rum or geneva (A). A warming pan heated (the body being surrounded with flannel) may be lightly moved up and down the back. Fomentations of hot brandy are to be applied to the pit of the stomach, loins, &c. and often renewed. Bottles filled with hot water, heated tiles covered with flannel, or hot bricks, may be efficaciously applied to the soles of the feet, palms of the hands, and other parts of the body. The temples may be rubbed with spirits of hartshorn, and the nostrils now and then tickled with a feather; and snuff, or *eau de luce*, should be occasionally applied.

VIII. Tobacco fumes should be thrown up the fundament: if a fumigator be not at hand, the common pipe may answer the purpose. The operation should be frequently performed, as it is of importance; for the good effects of this process have been experienced in a variety of instances of suspended animation. But should the application of tobacco smoke in this way not be immediately convenient, or other impediments arise, clysters of this herb, or other acrid infusions with salt, &c. may be thrown up with advantage.

IX. When these means have been employed a considerable time without success, and any brewhouse or warm bath can be readily obtained, the body should be carefully conveyed to such a place, and remain in the bath, or surrounded with warm grains, for three or four hours.

If a child has been drowned, its body should be wiped perfectly dry, and immediately placed in bed between two healthy persons. The salutary effects of the natural vital warmth, conveyed in this manner, have been proved in a variety of successful cases.

X. While the various methods of treatment are employed, the body is to be well shaken every ten minutes, in order to render the process of animation more certainly successful; and children, in particular, are to be much agitated, by taking hold of their legs and arms, frequently and for a continuance of time. In various instances agitation has forwarded the recovery of boys who have been drowned, and continued for a considerable time apparently dead.

XI. If there be any signs of returning life, such as sighing, gasping, or convulsive motions, a spoonful of any warm liquid may be administered; and if the act of swallowing is returned, then a cordial of warm brandy or wine may be given in small quantities, and frequently repeated.

XII. Electricity may be tried by the judicious and skillful, as its application neither prevents nor retards the various modes of recovery already recommended; but on the other hand, will most probably tend to render the other means employed more certainly and more

expeditiously efficacious. This stimulus bids fair to prove an important auxiliary in cases of suspended animation; and therefore deserves the serious regard and attention of the faculty.

The methods which have been fully described, are to be employed with vigour for three hours or upwards, although no favourable circumstances should arise; for it is a vulgar and dangerous opinion to suppose that persons are irrecoverable, because life does not soon make its appearance; an opinion that has confined to the grave an immense number of the seemingly dead, who might have been restored to life by resolution and perseverance.

Bleeding is never to be employed in such cases, unless by the direction of one of the medical assistants, or some other gentleman of the faculty who has paid attention to the resuscitating art.

DRUG, a general term for goods of the druggist and grocery kinds, especially those used in medicine and dyeing. See MATERIA MEDICA, PHARMACY, and DYEING.

DRUGGET, in commerce, a stuff sometimes all wool, and sometimes half wool half thread, sometimes corded, but usually plain. Those that have the woof of wool, and the warp of thread, are called *threaded druggets*; and those wrought with the shuttle on a loom of four marches, as the serges of Mouti, Beauvois, and other like stuffs corded, are called *corded druggets*. As to the plain, they are wrought on a loom of two marches, with the shuttle, in the same manner as cloth, camblets, and other like stuffs not corded.

DRUIDÆ, or DROIVM, in *Ancient Geography*, a very ancient town, the principal place of the Druides or Druidæ in Gaul, as they are called (Cæsar, Cicero). Now *Dreux* in the Orleanois. Here they met every year in a consecrated grove, according to Cæsar. The town was also called *Durocafes*. W. Long. 1. 21. N. Lat. 48. 45.

DRUIDS, DRUIDES, or DRUIDÆ, the priests or ministers of religion among the ancient Celtæ or Gauls, Britons, and Germans.

Some authors derive the word from the Hebrew דרושים *deruffim*, or *druffim*, which they translate *contemplatores*. Picard, *Celtopæd.* lib. ii. p. 58. believes the druids to have been thus called from *Druis*, or *Dryius*, their leader, the fourth or fifth king of the Gauls, and father of Saron or Naumes. Pliny, Salmastius, Vigenere, &c. derive the name from δρυς, *oak*; on account of their inhabiting, or at least frequenting, and teaching in forests; or perhaps because, as Pliny says, they never sacrificed but under the oak. But it is hard to imagine how the druids should come to speak Greek. Menage derives the word from the old British *drus*, "dæmon, magician." Borel, from the Saxon *dry*, "magician;" or rather from the old British *dru*, or *derw*, "oak," whence he takes δρυς to be derived; which is the most probable supposition. Gorop. Becanus, lib. i. takes *druis* to be an old Celtic and German word, formed from *truwis* or *truwis*, a doctor of the

(A) Dr Fothergill of Bath, in a letter to the Register, advises as a potent and active stimulus the patent mustard moistened with spirits.

Druids. of the truth and the faith ;" which etymology Vossius acquiesces in.

1
General account of the druids.

The druids were the first and most distinguished order among the Gauls and Britons ; they were chosen out of the best families ; and the honours of their birth, joined with those of their function, procured them the highest veneration among the people. They were versed in astrology, geometry, natural philosophy, politics, and geography ; they were the interpreters of religion, and the judges of all affairs indifferently. Whoever refused obedience to them was declared impious and accursed. We know but little as to their peculiar doctrines ; only that they believed the immortality of the soul, and, as is generally also supposed, the metempsychosis ; though a late author makes it appear highly probable they did not believe this last, at least not in the sense of the Pythagoreans.

The chief settlement of the druids in Britain was in the isle of Anglesey, the ancient *Mona*, which they might choose for this purpose, as it is well stored with spacious groves of their favourite oak. They were divided into several classes or branches, viz. the *vacerri*, *bardi*, *eubages*, *symnothii*, or *semnothi*, and *faronidæ*. The *vacerri* are held to have been the priests ; the *bardi*, the poets ; the *eubages*, the augurs ; and the *faronidæ*, the civil judges and instructors of youth. As to the *semnothi*, who are said to have been immediately devoted to the service of religion, it is probable they were the same with the *vacerri*. Strabo, however, (lib. iv. p. 197.) and Picard after him in his *Celtopædia*, do not comprehend all these different orders under the denomination of druids, as species under their genus, or parts under the whole ; but make them quite different conditions or orders. Strabo, in effect, only distinguishes three kinds ; *bardi*, *vates*, and *druids*. The *bardi* were the poets ; the *vates*, *vatus* (apparently the same with the *vacerri*), were the priests and naturalists ; and the *druids*, beside the study of nature, applied themselves likewise to morality.

Diogenes Laertius assures us, in his prologue, that the druids were the same among the ancient Britons with the sophi or philosophers among the Greeks ; the magi among the Persians ; the gymnosophists among the Indians ; and the Chaldeans among the Assyrians.

Their garments were remarkably long ; and, when employed in religious ceremonies, they always wore a white surplice. They generally carried a wand in their hands ; and wore a kind of ornament enchased in gold about their necks, called the *druid's egg*. Their necks were likewise decorated with gold chains, and their hands and arms with bracelets : they wore their hair very short, and their beards remarkably long.

The druids had one chief, or arch-druid, in every nation, who acted as high priest, or *pontifex maximus*. He had absolute authority over the rest ; and commanded, decreed, punished, &c. at pleasure. At his death he was succeeded by the most considerable among his survivors ; and, if there were several pretenders, the matter was ended by an election, or else put to the decision of arms.

The druids, we have observed, were in the highest esteem. They presided at sacrifices, and other ceremonies ; and had the direction of every thing relating

to religion. The British and Gaulish youth flocked to them in crowds to be instructed by them. The children of the nobility, Mela tells us, they retired with into caves, or the most desolate parts of forests, and kept them there sometimes for twenty years under their discipline. Besides the immortality and metempsychosis, they were here instructed in the motion of the heavens, and the course of the stars ; the magnitude of the heavens and the earth ; the nature of things ; the power and wisdom of the gods, &c. They preserved the memory and actions of great men in their verses, which they never allowed to be wrote down, but made their pupils get them by heart. In their common course of learning, they are said to have taught them twenty-four thousand such verses. By this means their doctrines appeared more mysterious by being unknown to all but themselves ; and having no books to recur to, they were the more careful to fix them in their memory.

They worshipped the Supreme Being under the name of *Efus*, or *Hesus*, and the symbol of the oak ; and had no other temple than a wood or a grove, where all their religious rites were performed. Nor was any person admitted to enter that sacred recess, unless he carried with him a chain, in token of his absolute dependence on the Deity. Indeed, their whole religion originally consisted in acknowledging, that the Supreme Being, who made his abode in these sacred groves, governed the universe ; and that every creature ought to obey his laws, and pay him divine homage.

They considered the oak as the emblem, or rather the peculiar residence, of the Almighty ; and accordingly chaplets of it were worn both by the druids and people in their religious ceremonies, the altars were strewed with its leaves, and encircled with its branches. The fruit of it, especially the mistletoe, was thought to contain a divine virtue, and to be the peculiar gift of heaven. It was therefore sought for on the sixth day of the moon with the greatest earnestness and anxiety ; and when found was hailed with such raptures of joy, as almost exceeds imagination to conceive. As soon as the druids were informed of this fortunate discovery, they prepared every thing ready for the sacrifice under the oak, to which they fastened two white bulls by the horns ; then the arch-druid, attended by a prodigious number of people, ascended the tree, dressed in white ; and with a consecrated golden knife, or pruning-hook, cropped the mistletoe, which he received in his sagum or robe, amidst the rapturous exclamations of the people. Having secured this sacred plant, he descended the tree ; the bulls were sacrificed ; and the Deity invoked to bless his own gift, and render it efficacious in those distempers in which it should be administered.

The consecrated groves, in which they performed their religious rites, were fenced round with stones, to prevent any person's entering between the trees, except through the passages left open for that purpose, and which were guarded by some inferior druids, to prevent any stranger from intruding into their mysteries. These groves were of different forms ; some quite circular, others oblong, and more or less capacious as the votaries in the districts to which they belonged were more or less numerous. The area in

Druids.

the :

Druids. the centre of the grove was encompassed with several rows of large oaks set very close together. Within this large circle were several smaller ones surrounded with large stones; and near the centre of these smaller circles were stones of a prodigious size and convenient height, on which the victims were slain and offered. Each of these being a kind of altar, was surrounded with another row of stones, the use of which cannot now be known, unless they were intended as cinctures to keep the people at a convenient distance from the officiating priest.

Suetonius, in his life of Claudius, assures us the druids sacrificed men; and Mercury is said to be the god to whom they offered these victims. Diod. Siculus, lib. vi. observes it was only upon extraordinary occasions they made such offerings; as, to consult what measures to take, to learn what should befall them, &c. by the fall of the victim, the tearing of his members, and the manner of his blood gushing out. Augustus condemned the custom, and Tiberius and Claudius punished and abolished it.

We learn from Cæsar, that the druids were the judges and arbiters of all differences and disputes, both public and private: they took cognizance of murders, inheritances, boundaries, and limits; and decreed rewards and punishments. Such as disobeyed their decisions they excommunicated, which was their principal punishment; the criminal being hereby excluded from all public assemblies, and avoided by all the world; so that nobody durst speak to him for fear of being polluted. Strabo observes, they had sometimes interest and authority enough to stop armies upon the point of engaging, and accommodate their differences.

²
Their opinions and philosophy, whence derived.

It hath been disputed, whether the druids were themselves the inventors of their opinions and systems of religion and philosophy, or received them from others. Some have imagined, that the colony of Phocians which left Greece and built Marseilles in Gaul about the 57th Olympiad, imported the first principles of learning and philosophy, and communicated them to the Gauls and other nations in the west of Europe. It appears, indeed, that this famous colony contributed not a little to the improvement of that part of Gaul where it settled, and to the civilization of its inhabitants. "The Greek colony of Marseilles (says Justin) civilized the Gauls, and taught them to live under laws; to build cities and enclose them with walls; to raise corn; to cultivate the vine and olive; and, in a word, made so great a change both in the face of the country and the manners of its inhabitants, that Gaul seemed to be translated into Greece, rather than a few Greeks transplanted into Gaul." But though we may allow that the druids of Gaul and Britain borrowed some hints and embellishments of their philosophy from this Greek colony, and perhaps from other quarters, we have reason to believe that the substance of it was their own. Others have suggested, that the druids derived their philosophy from Pythagoras, who published his doctrines at Crotona in Italy; where he lived in the highest reputation for his virtue, wisdom, and learning, above 20 years. This conjecture is very much confirmed by this remarkable expression of Ammianus Marcellinus, "That the druids were formed into fraternities, as the authority of Pythagoras decreed." It hath been also observed, that the philoso-

phy of the druids bore a much greater resemblance to that of Pythagoras than to that of any of the other sages of antiquity. But it seems probable, that Ammianus meant no more by the above expression than to illustrate the nature of the druidical fraternities, by comparing them to those of the Pythagoreans, which were well known to the Romans; and the resemblance between the Pythagorean and druidical philosophy may perhaps be best accounted for, by supposing, that Pythagoras learned and adopted some of the opinions of the druids, as well as imparted to them some of his discoveries. It is well known, that this philosopher, animated by the most ardent love of knowledge, travelled into many countries in pursuit of it, and got himself admitted into every society that was famous for its learning. It is therefore highly probable in itself, as well as directly asserted by several authors, that Pythagoras heard the druids of Gaul, and was initiated into their philosophy.

From the concurring testimonies of several au-³thors, it appears that physiology, or natural philo-^{More particular account of the learning of the druids.}sophy, was the favourite study of the druids of Gaul and Britain. Cicero tells us, that he was personally acquainted with one of the Gaulish druids, Divitiacus the Æduan, a man of quality in his country, who professed to have a thorough knowledge of the laws of nature, or that science which the Greeks call *physics* or *physiology*. According to Diodorus⁴ Siculus, Strabo, Cæsar, Mela, Ammianus Marcel-^{Physics, or natural philosophy.}linus, and others, they entered into many disquisitions and disputations in their schools, concerning the form and magnitude of the universe in general, and of this earth in particular, and even concerning the most sublime and hidden secrets of nature. On these and the like subjects they formed a variety of systems and hypotheses; which they delivered to their disciples in verse, that they might the more easily retain them in their memories, since they were not allowed to commit them to writing. Strabo hath preserved one of the physiological opinions of the druids concerning the universe; viz. that it was never to be entirely destroyed or annihilated; but was to undergo a succession of great changes and revolutions, which were to be produced sometimes by the power and predominancy of water, and sometimes by that of fire. This opinion, he intimates, was not peculiar to them, but was entertained also by the philosophers of other nations; and Cicero speaks of it as a truth universally acknowledged and undeniable. "It is impossible for us (says he) to attain a glory that is eternal, or even of very long duration, on account of these deluges and conflagrations of the earth which must necessarily happen at certain periods." This opinion, which was entertained by the most ancient philosophers of many different and very distant nations, was probably neither the result of rational inquiry in all these nations, nor communicated from one of them to others; but descended to them all from their common ancestors of the family of Noah by tradition, but corrupted and misunderstood through length of time. The agreement of the druids with the philosophers of so many other nations in this opinion about the alternate dissolution and renovation of the world, gives us reason to believe, that they agreed with them also in their opinion of its origin from two distinct principles; the one intelligent and omnipotent, which

Druids. which was God; the other inanimate and inactive, which was matter. We are told, by Cæsar, that they had many disquisitions about the power of God; and, no doubt, amongst other particulars, about his creating power. But whether they believed with some that matter was eternal, or with others that it was created; and in what manner they endeavoured to account for the disposition of it into the present form of the universe, we are entirely ignorant, though they certainly had their speculations on these subjects. We are only informed, that they did not express their sentiments on these and like heads in a plain and natural, but in a dark, figurative, and enigmatical manner. This might incline us to suspect, that Pythagoras had borrowed from them his doctrine about numbers, to whose mystical energy he ascribes the formation of all things; for nothing can be more dark and enigmatical than that doctrine. The druids disputed likewise about the magnitude and form of the world in general, and of the earth in particular, of which things they pretended to have a perfect knowledge. We know not what their opinions were about the dimensions of the universe or of the earth, but we have several reasons to make us imagine that they believed both to be of a spherical form. This is visibly the shape and form of the sun, moon, and stars, the most conspicuous parts of the universe; from whence it was natural and easy to infer, that this was the form of the world and of the earth. Accordingly this seems to have been the opinion of the philosophers of all nations; and the circle was the favourite figure of the druids, as appears from the form both of their houses and places of worship. Besides these general speculations about the origin, dissolution, magnitude, and form of the world and of the earth, the druids engaged in particular inquiries into the natures and properties of the different kind of substances. But all their discoveries in this most useful and extensive branch of natural philosophy, whatever they were, are entirely lost.

⁵
Astronomy.

Astronomy also appears to have been one of the chief studies of the druids of Gaul and Britain. "The druids (says Cæsar) have many disquisitions concerning the heavenly bodies and their motions, in which they instruct their disciples." Mela, speaking of the same philosophers, observes, "That they profess to have great knowledge of the motions of the heavens and of the stars." Some knowledge of this science indeed was not only necessary for measuring time in general, marking the duration of the different seasons, regulating the operations of the husbandman, directing the course of the mariner, and for many other persons in civil life; but it was especially necessary for fixing the times and regular returns of their religious solemnities, of which the druids had the sole direction. Some of these solemnities were monthly, and others annual. It was therefore necessary for them to know, with some tolerable degree of exactness, the number of days in which the sun and moon performed their revolutions, that these solemnities might be observed at their proper seasons. This was the more necessary, as some of these solemnities were attended by persons from different and very distant countries, who were all to meet at one place on one day; who must have had some rule to discover the annual return of that day.

The most perceptible division of time by the two great luminaries is into day and night; the former occasioned by the presence of the sun above the horizon, the latter by his absence, which is in some measure supplied by the moon and stars. The druids computed their time by nights, and not by days; a custom which they had received from their most remote ancestors by tradition, and in which they were confirmed by their measuring their time very much by the moon, the mistress and queen of night. As the changes in the aspect of that luminary are most conspicuous, they engaged the attention of the most ancient astronomers of all countries, and particularly of the druids, who regulated all their great solemnities, both sacred and civil, by the age and aspect of the moon. "When no unexpected accident prevents it, they assemble upon stated days, either at the time of the new or full moon; for they believe these to be the most auspicious times for transacting all affairs of importance." Their most august ceremony of cutting the mistletoe from the oak by the arch-druid, was always performed on the sixth day of the moon. Nay, they even regulated their military operations very much by this luminary, and avoided, as much as possible, to engage in battle while the moon was on the wane. As the attention of the druids was so much fixed on this planet, it could not be very long before they discovered that she passed through all her various aspects in about thirty days; and by degrees, and more accurate observations, they would find, that the real time of her performing an entire revolution was very nearly $29\frac{1}{2}$ days. This furnished them with the division of their time into months, or revolutions of the moon; of which we know with certainty they were possessed. But this period, though of great use, was evidently too short for many purposes, and particularly for measuring the seasons; which they could not fail to perceive depended on the influences of the sun. By continued observation they discovered, that about 12 revolutions of the moon included all the variety of seasons, which begun again, and revolved every 12 months. This suggested to them that larger division of time called a year, consisting of 12 lunations, or 354 days, which was the most ancient measure of the year in almost all nations. That this was for some time at least the form of the druidical year, is both probable in itself, and from the following expression of Pliny: "That they began both their months and years, not from the change, but from the sixth day of the moon." This is even a demonstration that their years consisted of a certain number of lunar revolutions, as they always commenced on the same day of the moon. But as this year of 12 lunar months falls 11 days and nearly one-fourth of a day short of a real revolution of the sun, this error would soon be perceived, and call for reformation; though we are not informed of the particular manner in which it was rectified. Various arguments might be collected to make it very probable that the Britons were acquainted with a year exact enough for every purpose of life, when they were first invaded by the Romans; but it will be sufficient to mention one, which is taken from the time and circumstances of that invasion. The learned Dr Halley hath demonstrated that Cæsar arrived in Britain, in his first year's expedition, on the 26th day of August:

Druids.

⁶
Their method of computing time.

Druids.

gust. and Cæsar himself informs us, that at his arrival the harvest was finished, except in one field, which by some means or other was more backward than the rest of the country. This is a proof that the British husbandmen knew and used the most proper seasons for ploughing, sowing, and reaping. The druids, as we are told by Pliny, had also a cycle or period of 30 years, which they called an age, and which commenced likewise on the sixth day of the moon; but that author hath not acquainted us on what principles this cycle was formed, nor to what purposes it was applied. We can hardly suppose that this was the cycle of the sun, which consists of 28 years, and regulates the dominical letters. It is more probable, that while the druids made use of the year of 12 lunar months, and had not invented a method of adjusting it to the real revolution of the sun, they observed that the beginning of this year had passed through all the seasons, and returned to the point from whence it set out, in a course of about 33 years; which they might therefore call an age. Others may perhaps be of opinion, that this 30 years cycle of the druids is the same with the great year of the Pythagoreans, or a revolution of Saturn. Some have imagined that the druids were also acquainted with the cycle of 19 years, which is commonly called the cycle of the moon. But the evidence of this depends entirely on the truth of that supposition, that the Hyperborean island, which is described by Diodorus Siculus, was Britain, or some of the British isles. Among many other surprising things, that author says, concerning the Hyperborean island, "That its inhabitants believed that Apollo descended into their island at the end of every 19 years; in which period of time the sun and moon, having performed their various revolutions, return to the same point, and begin to repeat the same revolutions. This is called by the Greeks the great year, or the cycle of Meton."

7
Their
knowledge
of the stars.

We are told both by Cæsar and Mela, that the druids studied the stars as well as the sun and moon; and that they professed to know, and taught their disciples, many things concerning the motions of these heavenly bodies. From these testimonies we may conclude that the druids were acquainted with the planets, distinguished them from the fixed stars, and carefully observed their motions and revolutions. If this discovery was the result of their own observations, it would be gradual, and it would be a long time before they found out all the planets. They might perhaps have received some assistance and information from Pythagoras, or from some other quarter. But whether this discovery of the planets was their own, or communicated to them by others, it is highly probable that they were acquainted with the precise number of these wandering stars. Dio Cassius says, that the custom of giving the name of one of the planets to each of the seven days of the week was an invention of the Egyptians, and from them was gradually communicated to all the other nations of the world; and that in his time this custom was so firmly established, not only among the Romans, but among all the rest of mankind, that in every country it appeared to be a native institution. The knowledge of the planets, and perhaps the custom of giving their names to the days of the week, was brought out of Egypt into Italy by Pythagoras, more than 500 years before the beginning

of the Christian era; and from thence it could not be very long before it reached Gaul and Britain. But though we have little or no reason to doubt that the druids knew the number and observed the motion of the planets, yet it may be questioned whether they had discovered the times in which they performed their several revolutions. Some of these stars, as Jupiter and Saturn, take so great a number of years in revolving, that it required a very extraordinary degree of patience and attention to discover the precise periods of their revolutions. If we could be certain that the island in which the ancients imagined Saturn lay asleep, was one of the British isles, as Plutarch intimates it was, we might be inclined to think that the British druids were not ignorant of the length of the period in which the planet Saturn performs a revolution. For that same author, in another treatise, tells us, "That the inhabitants of that island kept every thirtieth year a solemn festival in honour of Saturn, when his star entered into the sign of Taurus."

Druids.

If we could depend upon the above testimony of Plutarch, we should have one positive proof that the druids of the British isles were acquainted with the constellations, and even with the signs of the zodiac; and that they measured the revolutions of the sun and planets, by observing the length of time between their departure from and return to one of these signs. But we have no direct evidence of this remaining in history.

The druids of Gaul and Britain, as well as the ancient philosophers of other countries, had a general plan or system of the universe, and of the disposition and arrangement of its various parts, in which they instructed their disciples. This is both probable in itself, and is plainly intimated by several authors of the greatest authority. But we cannot be certain whether this druidical system of the world was of their own invention, or was borrowed from others. If it was borrowed, it was most probably from the Pythagoreans, to whom they were the nearest neighbours; and with whom they had the greatest intercourse.

It hath been imagined, that the druids had instruments of some kind or other, which answered the same purposes with our telescopes, in making observations on the heavenly bodies. The only foundation of this very improbable conjecture is an expression of Diodorus Siculus, in his description of the famous Hyperborean island. "They say further, that the moon is seen from that island, as if she was but at a little distance from the earth, and having hills or mountains like ours on her surface." But no such inference can be reasonably drawn from this expression, which in reality merits little more regard than what Strabo reports was said of some of the inhabitants of Spain: "That they heard the hissing noise of the sun every evening when he fell into the western ocean."

The application of the druids to the study of philosophy and astronomy amounts almost to a demonstration that they applied also to the study of arithmetic and geometry. For some knowledge of both these sciences is indispensably necessary to the physiologist and astronomer, as well as of great and daily use in the common affairs of life.

If we were certain that ABARIS, the famous Hyperborean philosopher, the friend and scholar of Pythagoras,

Druids. Pythagoras, was really a British druid, as some have imagined, we should be able to produce direct historical evidence of their arithmetical knowledge. For Iamblicus, in the life of Pythagoras, says, "that he taught Abaris to find out all truth by the science of arithmetic." It may be thought improbable that the druids had made any considerable progress in arithmetic, as this may seem to be impossible by the mere strength of memory without the assistance of figures and of written rules. But it is very difficult to ascertain what may be done by memory alone, when it hath been long exercised in this way. We have had an example in our own age, of a person * who could perform some of the most tedious and difficult operations in arithmetic by the mere strength of his memory. The want of written rules could be no great disadvantage to the druids, as the precepts of this, as well as of the other sciences, were couched in verse, which would be easily got by heart and long remembered. Though the druids were unacquainted with the Arabic characters which are now in use, we have no reason to suppose that they were destitute of marks or characters of some other kind, which, in some measure, answered the same purposes, both in making and recording their calculations. In particular, we have reason to think, that they made use of the letters of the Greek alphabet for both these purposes. This seems to be plainly intimated by Cæsar in the following expression concerning the druids of Gaul: "In almost all other public transactions, and private accounts or computations, they make use of the Greek letters." This is further confirmed by what the same author says of the Helvetii; a people of the same origin, language, and manners, with the Gauls and Britons. "Tables were found in the camp of the Helvetii written in Greek letters, containing an account of all the men capable of bearing arms, who had left their native country, and also separate accounts of the boys, old men, and women." There is historical evidence of the druids being also well acquainted with geometry. "When any disputes arise (says Cæsar) about their inheritances, or any controversies about the limits of their fields, they are entirely referred to the decision of their druids." But besides the knowledge of mensuration which this implies, both Cæsar and Mela plainly intimate that the druids were conversant in the most sublime speculations of geometry; "in measuring the magnitude of the earth, and even of the world."

⁹
Skill in mechanics.

There are still many monuments remaining in Britain and the adjacent isles, which cannot so reasonably be ascribed to any as to the ancient Britons, and which give us cause to think, that they had made great progress in this useful part of learning, and could apply the mechanical powers so as to produce very astonishing effects. As these monuments appear to have been designed for religious purposes, we may be certain that they were erected under the direction of the druids. How many obelisks or pillars, of one rough unpolished stone each, are still to be seen in Britain and its isles! Some of these pillars are both very thick and lofty, erected on the summits of barrows and of mountains; and some of them (as at Stonehenge) have ponderous blocks of stone raised aloft, and resting on the tops of the upright pillars. We can

VOL. VII. Part I.

hardly suppose that it was possible to cut these prodigious masses of stone (some of them above 40 tons in weight) without wedges, or to raise them out of the quarry without levers. But it certainly required still greater knowledge of the mechanical powers, and of the method of applying them, to transport those huge stones from the quarry to the places of their destination; to erect the perpendicular pillars, and to elevate the imposts to the tops of these pillars. If that prodigious stone in the parish of Constantine, Cornwall, was really removed by art from its original place, and fixed where it now stands (as one of our most learned and diligent antiquaries thinks it was *), it is a demonstration, that the druids could perform the most astonishing feats by their skill in mechanics. That the British druids were acquainted with the principles and use of the balance, we have good reason to believe, not only from the great antiquity of that discovery in other parts of the world, but also from some druidical monuments which are still remaining in this island. These monuments are called *Lagan Stones*, or rocking stones; and each of them consists of one prodigious block of stone, resting upon an upright stone or rock, and so equally balanced, that a very small force, sometimes even that of a child, can move it up and down, though hardly any force is sufficient to remove it from its station. Some of these stones may have fallen into this position by accident, but others of them evidently appear to have been placed in it by art. That the ancient Britons understood the construction and use of wheels, the great number of their war-chariots and other wheel-carriages is a sufficient proof; and that they knew how to combine them together and with the other mechanical powers, so as to form machines capable of raising and transporting very heavy weights, we have good reason to believe. In a word, if the British druids were wholly ignorant of the principles and use of any of the mechanical powers, it was most probably of the screw, though even of this we cannot be certain.

Druids.

* Dr Borlase's *Antiquities of Cornwall*, p. 174, 175.

¹⁰
In Germany and in the northern nations of Europe the healing art was chiefly committed to the old women of every state; but in Gaul and Britain it was entrusted to the druids, who were the physicians as well as the priests of these countries. Pliny says expressly, "That Tiberius Cæsar destroyed the druids of the Gauls, who were the poets and physicians of that nation;" and he might have added of the Britons. The people of Gaul and Britain were probably induced to devolve the care of their health on the druids, and to apply to these priests for the cure of their diseases, not only by the high esteem they had of their wisdom and learning, but also by the opinion which they entertained, that a very intimate connexion subsisted between the arts of healing and the rites of religion, and that the former were most effectual when they were accompanied by the latter. It appears indeed to have been the prevailing opinion of all the nations of antiquity, that all internal diseases proceeded immediately from the anger of the gods; and that the only way of obtaining relief from these diseases was by applying to their priests to appease their anger by religious rites and sacrifices. This was evidently the opinion and practice of the Gauls and Britons, who in some dangerous cases sacrificed one man as the most effectual means of curing another.

X x

Druids.

another. "They are much addicted (says Cæsar) to superstition; and for this cause, those who are afflicted with a dangerous disease sacrifice a man, or promise that they will sacrifice one, for their recovery. For this purpose they make use of the ministry of the druids; because they have declared, that the anger of the immortal gods cannot be appeased, so as to spare the life of one man, but by the life of another." This way of thinking gave rise also to that great number of magical rites and incantations with which the medical practices of the druids, and indeed of all the physicians of antiquity, were attended. "No body doubts (says Pliny) that magic derived its origin from medicine, and that, by its flattering but delusive promises, it came to be esteemed the most sublime and sacred part of the art of healing."

II
Botany.

That the druids made great use of herbs for medicinal purposes, we have sufficient evidence. They not only had a most superstitious veneration for the mistletoe of the oak, on a religious account, but they also entertained a very high opinion of its medical virtues, and esteemed it a kind of panacea or remedy for all diseases. "They call it (says Pliny) by a name which in their language signifies *All-heal*, because they have an opinion that it cureth all diseases." They believed it to be in particular a specific against barrenness, and a sovereign antidote against the fatal effects of poisons of all kinds. It was esteemed also an excellent emollient and discutient for softening and discussing hard tumours; good for drying up scrophulous sores; for curing ulcers and wounds; and (provided it was not suffered to touch the earth after it was cut) it was thought to be a very efficacious medicine in the epilepsy or falling sickness. It hath been thought useful in this last calamitous disease by some modern physicians. The pompous ceremonies with which the mistletoe was gathered by the druids have been already described. The selago, a kind of hedge hyssop resembling favin, was another plant much admired by the druids of Gaul and Britain for its supposed medicinal virtues, particularly in all diseases of the eyes. But its efficacy, according to them, depended very much upon its being gathered exactly in the following manner: The person who gathered it was to be clothed in a white robe; to have his feet bare, and washed in pure water; to offer a sacrifice of bread and wine before he proceeded to cut it; which he was to do with his right hand covered with the skirt of his garment, and with a hook of some more precious metal than iron. When it was cut, it was to be received into, and kept in a new and very clean cloth. When it was gathered exactly according to this whimsical ritual, they affirmed that it was not only an excellent medicine, but also a powerful charm and preservative from misfortunes and unhappy accidents of all kinds. They entertained a high opinion also of the herb samolus or marshwort, for its fanative qualities; and gave many directions for the gathering it, no less fanciful than those above mentioned. The person who was to perform that office was to do it fasting, and with his left hand; he was on no account to look behind him, nor to turn his face from the herbs he was gathering. It would be tedious to relate the extravagant notions they entertained of the many virtues of the vervain, and to recount the ridiculous mummeries which they practised in gathering

and preparing it, both for the purposes of divination and physic. These things may be seen in Plin. Hist. Nat. l. 25. c. 9. from whence we have received all these anecdotes of the botany of the druids. It is easy to see that his information was very imperfect; and that, like many of the other Greek and Roman writers, he designedly represents the philosophers of Gaul and Britain in an unfavourable light. The herb which was called *Britannica* by the ancients, which some think was the great water-dock, and others the cochlearia or scurvy-grass, was probably much used in this island for medical purposes; as it derived its name from hence, and was from hence exported to Rome and other parts. Though these few imperfect hints are all that we can now collect of the botany of the British druids, yet we have some reason to think that they were not contemptible botanists. Their circumstances were peculiarly favourable for the acquisition of this kind of knowledge. For as they spent most of their time in the recesses of mountains, groves, and woods, the spontaneous vegetable productions of the earth constantly presented themselves to their view, and courted their attention.

The opinions which, it is said, the druids of Gaul and Britain entertained of their anguinum or serpents egg, both as a charm and as a medicine, are romantic and extravagant in a very high degree. This extraordinary egg was formed, as they pretended, by a great number of serpents, interwoven and twined together; and when it was formed, it was raised up in the air by the hissing of these serpents, and was to be caught in a clean white cloth before it fell to the ground. The person who caught it was obliged to mount a swift horse, and to ride away at full speed to escape from the serpents, who pursued him with great rage, until they were stopped by some river. The way of making trial of the genuineness of this egg was no less extraordinary. It was to be enchaſed in gold, and thrown into a river, and if it was genuine it would swim against the stream. "I have seen (says Pliny) that egg; it is about the bigness of a moderate apple, its shell is a cartilaginous incrustation, full of little cavities, such as are on the legs of the polypus; it is the insignia or badge of distinction of the druids." The virtues which they ascribed to this egg were many and wonderful. It was particularly efficacious to render those who carried it about with them superior to their adversaries in all disputes, and to procure them the favour and friendship of great men. Some have thought that this whole affair of the serpents egg was a mere fraud, contrived by the druids, to excite the admiration and pick the pockets of credulous people, who purchased these wonder-working eggs from them at a high price. Others have imagined that this story of the anguinum (of which there is an ancient monument in the cathedral at Paris) was an emblematical representation of the doctrine of the druids concerning the creation of the world. The serpents, say they, represent the Divine wisdom forming the universe, and the egg is the emblem of the world formed by that wisdom. It may be added, that the virtue ascribed to the anguinum, of giving those who possessed it a superiority over others, and endearing them to great men, may perhaps be intended to represent the natural effects of learning and philosophy. But in so doubtful

Druids.

Druids. a matter every one is at full liberty to form what judgment he thinks proper.

12
Rhetoric.

As the influence and authority of the druids in their country, depended very much upon the reputation of their superior wisdom and learning, they wisely applied to the study of those sciences which most directly contributed to the support and advancement of that reputation. In this number, besides those already mentioned, we may justly reckon rhetoric, which was diligently studied and taught by the druids of Gaul and Britain; who to the charms of their eloquence were indebted for much of the admiration and authority which they enjoyed. They had indeed many calls and opportunities to display their eloquence, and to discover its great power and efficacy; as, when they were teaching their pupils in their schools; when they discoursed in public to the people on religious and moral subjects; when they pleaded causes in the courts of justice; and when they harangued in the great councils of the nation, and at the heads of armies ready to engage in battle, sometimes with a view to inflame their courage, and at other times with a design to allay their fury, and dispose them to make peace. Though this last was certainly a very difficult task among fierce and warlike nations, yet such was the authority and eloquence of the druids, that they frequently succeeded in it. "They pay a great regard (says Diodorus Siculus) to their exhortations, not only in the affairs of peace, but even of war, and these are respected both by their friends and enemies. They sometimes step in between two hostile armies, who are standing with their swords drawn and their spears extended, ready to engage; and by their eloquence, as by an irresistible enchantment, they prevent the effusion of blood, and prevail upon them to sheath their swords. So great are the charms of eloquence and the power of wisdom even amongst the most fierce barbarians." The British kings and chieftans who were educated by the druids, were famous for their eloquence. This is evident from the many noble speeches which are ascribed to them by the Greek and Roman writers. For though these speeches may not be genuine, yet they are a proof that it was a well known fact, that these princes were accustomed to make harangues on these and the like occasions. This we are expressly told by Tacitus:—"The British chieftans, before a battle, fly from rank to rank, and address their men with animating speeches, tending to inflame their courage, increase their hopes, and dispel their fears." These harangues were called, in the ancient language of Britain, *Brosnichiy Kab*, which is literally translated by Tacitus, *Incitamenta Belli*, "incentives to war." The genuine posterity of the ancient Britons long retained their taste for eloquence, and their high esteem for those who excelled in that art. "Orators (says Mr Martin) were in high esteem, both in these islands (the *Æbudæ*) and the continent, until within these forty years. They sat always among the nobles or chiefs of families in the streat or circle. Their houses and little villages were sanctuaries, as well as churches, and they took place before doctors of physic. The orators, after the druids were extinct, were brought in to preserve the genealogy of families, and to repeat the same at every succession of a chief; and upon the occasion of marriages and births, they made epithalamiums and paene-

gyrics, which the poet or bard pronounced. The orators, by the force of their eloquence, had a powerful ascendancy over the greatest men in their time. For if any orator did but ask the habit, arms, horse, or any other thing belonging to the greatest man in these islands, it was readily granted him; sometimes out of respect, and sometimes for fear of being exclaimed against by a satire, which in those days was reckoned a great dishonour."

If the British druids, considering the times in which they lived, had made no contemptible proficiency in several parts of real and useful learning, it cannot be denied that they were also great pretenders to superior knowledge in certain vain fallacious sciences, by which they excited the admiration, and took advantage of the ignorance and credulity of mankind. These were the sciences (if they may be so called) of magic and divination; by which they pretended to work a kind of miracles, and exhibit astonishing appearances in nature; to penetrate into the counsels of heaven; to foretell future events, and to discover the success or miscarriage of public or private undertakings. Their own countrymen not only believed that the druids of Gaul and Britain were possessed of these powers, but they were celebrated on this account by the philosophers of Greece and Rome. "In Britain (says Pliny) the magic arts are cultivated with such astonishing success, and so many ceremonies, at this day, that the Britons seem to be capable of instructing even the Persians themselves in these arts. They pretend to discover the designs and purposes of the gods. The Eubates or Vates in particular investigate and display the most sublime secrets of nature; and, by auspices and sacrifices, they foretell future events." They were so famous for the supposed veracity of their predictions, that they were not only consulted on all important occasions by their own princes and great men, but even sometimes by the Roman emperors. Nor is it very difficult to account for all this. The druids finding that the reputation of their magical and prophetic powers contributed not a little to the advancement of their wealth and influence, they endeavoured, no doubt, to strengthen and establish it by all their art and cunning. Their knowledge of natural philosophy and mechanics enabled them to execute such works, and to exhibit such appearances, or to make the world believe that they did exhibit them, as were sufficient to gain them the character of great magicians. The truth is, that nothing is more easy than to acquire this character in a dark age, and among an unenlightened people. When the minds of men are haunted with dreams of charms and enchantments, they are apt to fancy that the most common occurrences in nature are the effects of magical arts. The following strange story, which we meet with in Plutarch's Treatise of the Cessation of Oracles, was probably occasioned by something of this kind. "There are many islands which lie scattered about the isle of Britain after the manner of our Sporades. They are generally unpeopled, and some of them are called the *Islands of the Heroes*. One Demetrius was sent by the emperor (perhaps Claudius) to discover those parts. He arrived at one of these islands (supposed by some to be Anglesey, but more probably one of the *Ebudæ*) next adjoining to the isle of Britain before mentioned,

Druids.

13
Magic and
divination.

Druids,
Drum.

which was inhabited by a few Britons, who were esteemed sacred and inviolable by their countrymen. Immediately after his arrival the air grew black and troubled, and strange apparitions were seen; the winds rose to a tempest, and fiery spouts and whirlwinds appeared dancing towards the earth." This was probably no more than a storm of wind, accompanied with rain and lightning; a thing neither unnatural nor uncommon: but Demetrius and his companions having heard that the British druids, by whom this isle was chiefly inhabited, were great magicians, they imagined that it was raised by them; and fancied that they saw many strange and unnatural sights. The druids did not think proper to undeceive them; for when they inquired at them about the cause of this storm, they told them it was occasioned by the death of one of those invisible beings or genii who frequented their isle. A wonderful and artful tale, very well calculated to increase the superstitious terrors of Demetrius and his crew; and to determine them to abandon this enchanted isle, with a resolution never to return. Stonehenge, and several other works of the druids, were believed to have been executed by the arts of magic and enchantment, for many ages after the destruction of their whole order; nor is it improbable that they persuaded the vulgar in their own times to entertain the same opinion of these works, by concealing from them the real arts by which they are performed. The natural and acquired sagacity of the druids, their long experience, and great concern in the conduct of affairs, enabled them to form very probable conjectures about the events of enterprises. These conjectures they pronounced as oracles, when they were consulted; and they pretended to derive them from the inspection of the entrails of victims, the observation of the flight and feeding of certain birds, and many other mummeries. By these, and the like arts, they obtained and preserved the reputation of prophetic foresight among an ignorant and credulous people. But these pretensions of the druids to magic and divination, which contributed so much to the advancement of their fame and fortune in their own times, have brought very heavy reproaches upon their memory, and have made some learned moderns declare that they ought to be expunged out of the catalogue of philosophers, and esteemed no better than mere cheats and jugglers. This censure is evidently too severe, and might have been pronounced with equal justice upon all the ancient philosophers of Egypt, Assyria, Persia, Greece, and Rome; who were great pretenders to magic and divination, as well as our druids. "I know of no nation in the world (says Cicero) either so polite and learned, or so savage and barbarous, as not to believe that future events are prefigured to us, and may by some men be discovered and foretold." The only conclusion therefore that can be fairly drawn, from the successful pretensions of the British druids to the arts of magic and divination, is this—That they had more knowledge than their countrymen and contemporaries; but had not so much virtue as to resist the temptation of imposing upon their ignorance to their own advantage.

DRUM, is a martial musical instrument in form of a cylinder, hollow within, and covered at the two ends with vellum, which is stretched or slackened at pleasure

by the means of small cords or sliding knots. It is beat upon with sticks. Drums are sometimes made of brass, but most commonly they are of wood.—The drum is by Le Clerc said to have been an oriental invention, and to have been brought by the Arabians, or perhaps rather the Moors, into Spain.

Kettle-Drums, are two sorts of large basons of copper or brass, rounded in the bottom, and covered with vellum or goat skin, which is kept fast by a circle of iron round the body of the drum, with a number of screws to screw up and down. They are much used among the horse; as also in operas, oratorios, concerts, &c.

DRUM, or *Drummer*, he that beats the drum; of whom each company of foot has one, and sometimes two. Every regiment has a drum major, who has the command over the other drums. They are distinguished from the soldiers by clothes of a different fashion: their post, when a battalion is drawn up, is on the flanks, and on a march it is betwixt the divisions.

DRUM of the Ear, the same with the *tympanum*. See *ANATOMY Index*.

DRUMMOND, WILLIAM, a Scottish poet, was born in 1585, and was the son of Sir John Drummond, who for ten or twelve years was usher and afterwards knight of the black rod to James VI. His family became first distinguished by the marriage of Robert III. whose queen was sister to William Drummond of Carnock their ancestor; as appears by the patent of that king and James I. the one calling him "our brother," the other "our uncle."

Drummond was educated at Edinburgh, where he took the degree of A. M. In 1606 he was sent by his father to study civil law at Bourges in France: but having no taste for the profession of a lawyer, he returned to Scotland, and retired to his agreeable seat at Hawthornden; where he applied himself with great assiduity to classical learning and poetry, and obliged the world with several fine productions. Here he wrote his *Cypress Grove*, a piece of excellent prose, after a dangerous fit of sickness; and about the same time his *Flowers of Sion* in verse. But an accident befel him, which obliged him to quit his retirement; and that was the death of an amiable lady to whom he was just going to be married. This affected him so deeply, that he went to Paris and Rome, between which two places he resided eight years. He travelled also through Germany, France, and Italy: where he visited universities; conversed with learned men; and made a choice collection of the ancient Greek, and of the modern Spanish, French, and Italian books. He then returned to his native country; and some time thereafter married Margaret Logan, a grand-daughter of Sir Robert Logan. Upon the appearance of a civil war, he retired again; and in this retirement is supposed to have written his history of the Five James's successively kings of Scotland, which was not published till after his death. Having been grafted as it were on the royal family of Scotland, and upheld by them, he was steadily attached to Charles I.; but does not appear ever to have armed for him. As he had always been a laborious student, and had applied himself equally to history and politics as to classical learning, his services were better rendered by occasional publications, in which

Drum,
Drum-
mond.

Drummond.

which he several times distinguished himself. In a piece called *Irene*, he harangues the king, nobility, and clergy, about their mutual mistakes, fears, and jealousies; and lays before them the consequences of a civil war, from indisputable arguments and the histories of past times. The great marquis of Montrose wrote a letter to him, desiring him to print this *Irene*, as the best means to quiet the minds of a distracted people: he likewise sent him a protection, dated August 1645, immediately after the battle of Kilsyth, with a letter, in which he commends Mr Drummond's learning and loyalty. Mr Drummond wrote other things also with the same view of promoting peace and union, of calming the disturbed minds of the people, of reasoning the better sort into moderation, and checking the growing evils which would be the consequence of their obstinacy. But his efforts were fruitless; and his attachment to the king and his cause were so strong, that when he heard of the sentence being executed on him, he was overwhelmed with grief, and lifted his head no more. He died in the year 1649, leaving behind him several children: the eldest of whom, William, was knighted by Charles II. He had a great intimacy and correspondence with the two famous English poets, Michael Drayton and Ben Johnson; the latter of whom, at the age of 45, travelled from London on foot, to visit him at Hawthornden. An edition of his works, with his life prefixed, was printed in folio at Edinburgh, 1711.

Among all the writers, at the beginning of the last century, who flourished after the death of Shakespeare, an ingenious critic * observes, there is not one whom a general reader of the English poetry of that age will regard with so much and so deserved attention as William Drummond. In a survey of his poetry, two considerations must be had, viz. the nation of which he was, and the time when he wrote. Yet will these be found not offered to extenuate faults, but to increase admiration. His thoughts are often, nay generally, bold and highly poetical: he follows nature, and his verses are delicately harmonious. As his poems are not easily met with, and have perhaps by many readers never been heard of, a few extracts may be excused.

On the death of Henry prince of Wales in 1612, Drummond wrote an elegy, entitled *Tears on the Death of Moeliades*; a name which that prince had used in all his challenges of martial sport, as the anagram of *Miles a Deo*. In this poem are lines, according to Denham's terms, as strong, as deep, as gentle, and as full, as any of his or Waller's. The poet laments the fate of the prince, that he died not in some glorious cause of war: "Against the Turk (says he) thou hadst ended thy life and the Christian war together."

Or, as brave Bourbon, thou hadst made old Rome,
Queen of the world, thy triumph and thy tombe.

Of the lamentation of the river Forth:

And as she rush'd her Cyclades among,
She seem'd to plain that Heav'n had done her wrong.

Further:

Tagus did court his love with golden streams,
Rhine with her towns, fair Seine with all the claims:
But ah, poor lovers! death did them betray;
And unsuspected, made their hopes his prey.

And concludes:

The virgins to thy tomb will garlands bear
Of flow'rs, and with each flow'r let fall a tear.
Moeliades sweet courtly nymphs deplore,
From Thulé to Hydaspes' pearly shore.

Perhaps there are no lines of Pope of which the easy flow may be more justly admired than of those in his third pastoral;

Not bubbling fountains to the thirsty swain,
Not balmy sleep to lab'ers faint with pain,
Not showers to larks, or sunshine to the bee,
Are half so charming as thy fight to me.

When King James I. after his accession to the English throne, returned to Scotland in 1617, his arrival was celebrated by every effort of poetical congratulation. Upon this occasion Drummond composed a panegyric entitled *The Wandering Muses, or the River Forth feasting*; in which are found four lines apparently imitated by Pope in the above passage, and which do not in point of harmony fall much short of that imitation. He says,

To virgins, flow'rs; to sun-burnt earth, the rain;
To mariners, fair winds amidst the main;
Cool shades, to pilgrims whom hot glances burn;
Are not so pleasing as thy blest return.

Of these two poems of Drummond, it is observable, that the first was written in 1612, the last in 1617. The earliest piece of Waller is that to the king on his navy in 1625. The piece in which Sir John Denham's greatest force lies, *Cooper's Hill*, was not written till 1640. The harmony of Drummond, therefore, at a time when those who are usually called the first introducers of a smooth and polished versification had not yet begun to write, is an honour to him that should never be forgotten. Nor is his excellence half enough praised or acknowledged.

Drummond and Petrarch had this in common, that each lamented, first the cruelty, and then the loss of his mistress; so that their sonnets are alike naturally divided into two parts, those before and those after their several mistresses' deaths. It may justly be doubted, that among all the sonneteers in the English language any one is to be preferred to Drummond. He has shown in some of these compositions nearly the spirit of Petrarch himself. Of each period one is here inserted; the first, before the death of his mistress:

Ah me, and am I now the man, whose muse
In happier times was wont to laugh at love,
In those who suffered that blind boy abuse
The noble gifts were giv'n them from above!
What metamorphose strange is this I prove?
Myself I scarce now find myself to be;
And think no fable Circe's tyrannie,
And all the tales are told of changed Jove.
Virtue hath taught, with her philology
My mind into a better course to move.
Reason may chide her full, and oft reprove
Affection's power; but what is that to me,
Who ever think, and never think on aught
But that bright cherubim which thralls my thought!

I

From

* *Cursory Remarks on some of the English Poets*, 8vo. 1789.

Drummond.

Drummond,
Drunkenness.

From Part II. after her death, (Sonnet I.)

Of mortal glory, O soon darken'd ray!
O winged joys of man, more swift than wind!
O fond desires which in our fancies stray!
O traiterous hopes which do our judgments blind!

Lo, in a flash that light is gone away,
Which dazzle did each eye, delight each mind;
And with that sun from whence it came combin'd,
Now makes more radiant heav'n's eternal day.

Let Beauty now bedew her cheeks with tears;
Let widow'd Music only roar and groan;
Poor Virtue, get thee wings and mount the spheres,
For dwelling-place on earth for thee is none:
Death hath thy temple raz'd, Love's empire soild,
The world of honour, worth, and sweetness spoil'd.

The seventh sonnet of the first part has much resemblance to Sir Henry Wotton's elegant little poem on the queen of Bohemia, "Ye meaner beauties," &c. Among Drummond's Flowers of Sion, the poem which begins "Amidst the azure clear—of Jordan's sacred streams," eminently distinguishes him, whether he be considered as a philosopher or a poet.

DRUNKENNESS, a well-known disorder in the brain, occasioned by drinking too freely of spirituous liquors. Drunkenness appears in different shapes in different constitutions: some it makes gay, some sullen, and some furious. The mischief of drunkenness consists in the following bad effects: 1. It betrays most constitutions either into extravagancies of anger, or sins of lewdness. 2. It disqualifies men for the duties of their station, both by the temporary disorder of their faculties, and at length by a constant incapacity and stupefaction. 3. It is attended with expences, which can often be ill spared. 4. It is sure to occasion uneasiness to the family of the drunkard. 5. It shortens life. To these consequences of drunkenness must be added the peculiar danger and mischief of the example. "Drunkenness (Mr Paley observes) is a social festive vice. The drinker collects his circle; the circle naturally spreads; of those who are drawn within it, many become the corrupters and centres of sets and circles of their own; every one countenancing, and perhaps emulating, the rest, till a whole neighbourhood be infected from the contagion of a single example. With this observation upon the spreading quality of drunkenness, may be connected a remark which belongs to the several evil effects above recited. The consequences of a vice, like the symptoms of a disease, though they be all enumerated in the description, seldom all meet in the same subject. In the instance under consideration, the age and temperature of one drunkard may have little to fear from inflammations of lust or anger; the fortune of a second may not be injured by the expence; a third may have no family to be disquieted by his irregularities; and a fourth may possess a constitution fortified against the poison of strong liquors. But if, as we always ought to do, we comprehend within the consequences of our conduct the mischief and tendency of the example, the above circumstances, however fortunate for the individual, will be found to vary the guilt of his intemperance less, probably, than he supposes. Although the waste of time and money may be of small

importance to you, it may be of the utmost to some one or other whom your society corrupts. Repeated or long-continued excesses, which hurt not your health, may be fatal to your companion. Although you have neither wife nor child, nor parent, to lament your absence from home, or expect your return to it with terror; other families, whose husbands and fathers have been invited to share in your ebriety, or encouraged to imitate it, may justly lay their misery or ruin at your door. This will hold good, whether the person seduced be seduced immediately by you, or the vice be propagated from you to him through several intermediate examples."

The ancient Lacedemonians used to make their slaves frequently drunk, to give their children an aversion and horror for the same. The Indians hold drunkenness a species of madness; and in their language, the same term (*ramgam*), that signifies "drunkard," signifies also a "phrenetick."

Drunkenness is repeatedly forbidden by St Paul: "Be not drunk with wine, wherein is excess." "Let us walk honestly as in the day, not in rioting and drunkenness." "Be not deceived: neither fornicators, nor drunkards, nor revilers, nor extortioners, shall inherit the kingdom of God," Eph. vi. 18. Rom. xiii. 13. 1. Cor. vi. 9, 10. The same apostle likewise condemns drunkenness, as peculiarly inconsistent with the Christian profession: "They that be drunken, are drunken in the night; but let us, who are of the day, be sober." 1 Thess. v. 7, 8.

Drunkenness, by our laws, is looked upon as an aggravation rather than an excuse for any criminal behaviour. A drunkard, says Sir Edward Coke, who is *voluntarius demon*, hath no privilege thereby: but what hurt or ill soever he doth, his drunkenness doth aggravate it: *nam omne crimen ebrietas et incendit et detegit*. It hath been observed that the real use of strong liquors, and the abuse of them by drinking to excess, depend much upon the temperature of the climate in which we live. The same indulgence which may be necessary to make the blood move in Norway, would make an Italian mad. A German, therefore, says the president Montesquieu, drinks through custom founded upon constitutional necessity; a Spaniard drinks through choice, or out of the mere wantonness of luxury; and drunkenness, he adds, ought to be more severely punished where it makes men mischievous and mad, as in Spain and Italy, than where it only renders them stupid and heavy, as in Germany and more northern countries. And accordingly, in the warmer climate of Greece, a law of Pittacus enacted, "that he who committed a crime when drunk should receive a double punishment;" one for the crime itself, and the other for the ebriety which prompted him to commit it. The Roman law indeed made great allowances for this vice: *per vinum delapsis capitalis poena remittitur*. But the law of England, considering how easy it is to counterfeit this excuse, and how weak an excuse it is (though real), will not suffer any man thus to privilege one crime by another.

For the offence of drunkenness a man may be punished in the ecclesiastical court, as well as by justices of peace by statute. And by 4 Jac. I. c. 5. and 21 Jac. I. c. 7. if any person shall be convicted of drunkenness by the view of a justice, oath of one witness,

Drunkenness.

Drunken-
ness.

ness, &c. he shall forfeit 5s. for the first offence, to be levied by distress and sale of his goods; and for want of a distress, shall sit in the stocks six hours: and for the second offence, he is to be bound with two sureties in 10l. each, to be of good behaviour, or to be committed. And he who is guilty of any crime through his own voluntary drunkenness, shall be punished for it as if he had been sober. It has been held that drunkenness is a sufficient cause to remove a magistrate; and the prosecution for this offence by the statute of 4 Jac. I. c. 5. was to be, and still may be, before justices of peace in their sessions by way of indictment, &c. Equity will not relieve against a bond, &c. given by a man when drunk, unless the drunkenness is occasioned through the management or contrivance of him to whom the bond is given.

The appetite for intoxicating liquors appears to be almost always acquired. One proof of which is, that it is apt to return only at particular times and places; as after dinner, in the evening, on the market day, at the market town, in such a company, at such a tavern. And this may be the reason, that if a habit of drunkenness be ever overcome, it is upon some change of place, situation, company, or profession. A man sunk deep in a habit of drunkenness, will upon such occasions as these, when he finds himself loosened from the associations which held him fast, sometimes make a plunge, and get out. In a matter of such great importance, it is well worth while, where it is tolerably convenient, to change our habitation and society, for the sake of the experiment.

Habits of drunkenness commonly take their rise either from a fondness for, or connexion with, some company, or some companion, already addicted to this practice; which affords an almost irresistible invitation to take a share in the indulgencies which those about us are enjoying with so much apparent relish and delight; or from want of regular employment, which is sure to let in many superfluous cravings and customs, and often this amongst the rest; or, lastly, from grief or fatigue, both which strongly solicit that relief which inebriating liquors administer for the present, and furnish a specious excuse for complying with the inclination. But the habit, when once set in, is continued by different motives from those to which it owes its origin. Persons addicted to excessive drinking suffer, in the intervals of sobriety, and near the return of their accustomed indulgence, a faintness and oppression about the *præcordia* which it exceeds the ordinary patience of human nature to endure. This is usually relieved for a short time by a repetition of the same excess: and to this relief, as to the removal of every long-continued pain, they who have once experienced it are urged almost beyond the power of resistance. This is not all: as the liquor loses its stimulus, the dose must be increased, to reach the same pitch of elevation or ease; which increase proportionably accelerates the progress of all the maladies that drunkenness brings on. Whoever reflects, therefore, upon the violence of the craving in advanced stages of the habit, and the fatal termination to which the gratification of it leads, will, the moment he perceives the least tendency in himself of a growing inclination to intemperance, collect his resolution to this point; or (what perhaps he will find his best security) arm himself with

some peremptory rule, as to the times and quantity of his indulgencies.

DRUPA, or DRUPPA, in *Botany*, a species of *pericarpium* or seed-vessel, which is succulent or pulpy, has no valve or external opening like the capsule and pod, and contains within its substance a stone or nut. The cherry, plum, peach, apricot, and all other stone fruit are of this kind.

The term, which is of great antiquity, is synonymous to Tournefort's *fructus mollis officulo*, "soft fruit with a stone;" and to the *prunus* of other botanists.

The stone or nut, which in this species of fruit is surrounded by the soft pulpy flesh, is a kind of ligneous or woody cup, which contains a single kernel or seed.

This definition, however, will not apply to every seed-vessel denominated *drupa* in the *Genera Plantarum*. The almond is a *drupa*, so is the seed-vessel of the elm tree and the genus *rumpbia*, though far from being pulpy or succulent; the first and third are of a substance like leather, the second like parchment. The same may be said of the walnut, pistachia nut, *guettarda*, *quisqualis*, jack-in-a-box, and some others.

Again, the seeds of the elm, *schrebera*, *flagellaria*, and the mango tree, are not contained in a stone. The seed-vessel of burr reed is dry, shaped like a top, and contains two angular stones.

This species of fruit, or more properly seed-vessel, is commonly roundish, and when seated below the calyx or receptacle of the flower, is furnished, like the apple, at the end opposite to the footstalk, with a small umbilicus or cavity, which is produced by the swelling of the fruit before the falling off of the flower-cup.

DRUSES, or DRUZES, a remarkable nation in Palestine, inhabiting the environs of Mount Lebanon, of whose origin and history we have the following detail by M. Volney.

Twenty-three years after the death of Mahomet, the disputes between Ali his son-in-law and Moaouia governor of Syria, occasioned the first schism in the empire of the Arabs, and the two sects subsist to this day: but, in reality, this difference related only to power; and the Mahometans, however divided in opinion respecting the rightful successor of the prophet, were agreed with respect to their dogmas. It was not until the following century that the perusal of Greek books introduced among the Arabs a spirit of discussion and controversy, to which till then they were utter strangers. The consequence was, as might be expected, by reasoning on matters not susceptible of demonstration, and guided by the abstract principles of an unintelligible logic, they divided into a multitude of sects and opinions. At this period, too, the civil power lost its authority; and religion, which from that derives the means of preserving its unity, shared the same fate, and the Mahometans now experienced what had before befallen the Christians. The nations which had received the religion of Mahomet, mixed with it their former absurd notions; and the errors which had anciently prevailed over Asia again made their appearance, though altered in their forms. The metempsychosis, the doctrine of a good and evil principle, and the renovation after six thousand years, as it had been taught by Zoroaster, were again revived among the Mahometans. In this political and religious confusion every

Drupa,
Druses.

Drufes.

every enthusiast became an apostle, and every apostle the head of a sect. No less than sixty of these were reckoned, remarkable for the numbers of their followers, all differing in some points of faith, and all disavowing heresy and error. Such was the state of these countries when at the commencement of the 11th century Egypt became the theatre of one of the most extravagant scenes of enthusiasm and absurdity ever recorded in history. The following account is extracted from the eastern writers.

In the year of the Hegira 386 (A. D. 996), the third caliph of the race of the Fatimites, called *Hakem-b'amr-ellab*, succeeded to the throne of Egypt at the age of 11 years. He was one of the most extraordinary princes of whom history has preserved the memory. He caused the first caliphs, the companions of Mahomet, to be cursed in the mosques, and afterwards revoked the anathema: He compelled the Jews and Christians to abjure their religion, and then permitted them to resume it. He prohibited the making slippers for women, to prevent them from coming out of their houses. He burnt one half of the city of Cairo for his diversion, while his soldiers pillaged the other. Not contented with these extravagant actions, he forbade the pilgrimage to Mecca, fasting, and the five prayers; and at length carried his madness so far as to desire to pass for God himself. He ordered a register of those who acknowledged him to be so, and the number amounted to sixteen thousand. This impious pretension was supported by a false prophet, who came from Persia into Egypt; which impostor, named *Mohammed-ben-Ismael*, taught that it was not necessary to fast or pray, to practise circumcision, to make the pilgrimage to Mecca, or observe festivals; that the prohibition of pork and wine was absurd; and that marriage between brothers and sisters, fathers and children, was lawful. To ingratiate himself with Hakem, he maintained that this caliph was God himself incarnate; and instead of his name *Hakem-b'amr-ellab*, which signifies governing by the order of God, he called him *Hakem b'amr-eb*, governing by his own order. Unluckily for the prophet, his new god had not the power to protect him from the fury of his enemies, who slew him in a tumult almost in the arms of the caliph, who was himself massacred soon after on Mount Mokattam, where he, as he said, had held conversation with angels.

The death of these two chiefs did not stop the progress of their opinions: a disciple of Mohammed-ben-Ismael, named *Hamza-ben-Abmud*, propagated them with an indefatigable zeal in Egypt, in Palestine, and along the coast of Syria, as far as Sidon and Berytus. His profelytes being persecuted by the sect in power, they took refuge in the mountains of Lebanon, where they were better able to defend themselves; at least it is certain, that, shortly after this era, we find them established there, and forming an independent society.

The difference of their opinions disposes them to be enemies; but the urgent interest of their common safety forces them to allow mutual toleration, and they have always appeared united, and have jointly opposed, at different times, the Crusaders, the sultans of Aleppo, the Mamelukes, and the Ottomans. The conquest of Syria by the latter made no change in their situation. Selim I. on his return from Egypt, meditating no less than the conquest of Europe, disdained to waste his

Drufes.

time before the rocks of Lebanon. Soliman II. his successor, incessantly engaged in important wars, either with the knights of Rhodes, the Persians, the kingdom of Yemen, the Hungarians, the Germans, or the emperor Charles V. had no time to think of the Drufes. Emboldened by this inattention, and not content with their independence, they frequently descended from their mountains to pillage the Turks. The pachas in vain attempted to repel their inroads; their troops were invariably routed or repulsed. And it was not till the year 1588 that Amurath III. wearied with the complaints made to him, resolved, at all events, to reduce these rebels, and had the good fortune to succeed. His general Ibrahim Pacha marched from Cairo, and attacked the Drufes and Maronites with so much address and vigour as to force them into their strong holds, the mountains. Dissension took place among their chiefs, of which he availed himself to exact a contribution of upwards of one million of piasters, and to impose a tribute which has continued to the present time.

It appears that this expedition was the epoch of a considerable change in the constitution of the Drufes. Till then they had lived in a sort of anarchy, under the command of different sheiks or lords. The nation was likewise divided into two factions, such as is to be found in all the Arab tribes, and which are distinguished into the party Kaifi and the party Yamani. To simplify the administration, Ibrahim permitted them only one chief, who should be responsible for the tribute, and execute the office of civil magistrate; and this governor, from the nature of his situation, acquiring great authority, became almost the king of the republic; but as he was always chosen from among the Drufes, a consequence followed which the Turks had not foreseen, and which was nearly fatal to their power. For the chief thus chosen, having at his disposal the whole strength of the nation, was able to give it unanimity and energy, and it naturally turned against the Turks; since the Drufes, by becoming their subjects, had not ceased to be their enemies. They took care, however, that their attacks should be indirect, so as to save appearances, and only engaged in secret hostilities, more dangerous, perhaps, than open war.

About this time, that is, the beginning of the 17th century, the power of the Drufes attained its greatest height; which it owed to the talents and ambition of the celebrated Faker-el-din, commonly called *Fakardin*. No sooner was this prince advanced to be the chief of that people than he turned his whole attention to humble the Ottoman power, and aggrandize himself at its expence. In this enterprise he displayed an address seldom seen among the Turks. He first gained the confidence of the Porte, by every demonstration of loyalty and fidelity; and as the Arabs at that time infested the plain of Balbec and the countries of Sour and Acre, he made war upon them, freed the inhabitants from their depredations, and thus rendered them desirous of living under his government.

The city of Bairout was situated advantageously for his designs, as it opened a communication with foreign countries, and, among others, with the Venetians, the natural enemies of the Turks. Faker-el-din availed himself of the misconduct of the aga, expelled

^{Drufes.} ed him, seized on the city, and even had the art to make a merit of this act of hostility with the Divan, by paying a more considerable tribute. He proceeded in the same manner at Saïde, Balbec, and Sour; and at length, about the year 1613, saw himself master of all the country as far as Adjaloun and Safad. The pachas of Tripoli and Damascus could not see these encroachments with indifference; sometimes they opposed him with open force, though ineffectually, and sometimes endeavoured to ruin him at the Porte by secret insinuations; but the emir, who maintained there his spies and defenders, defeated every attempt.

At length, however, the Divan began to be alarmed at the progress of the Drufes, and made preparations for an expedition capable of crushing them. Whether from policy or fear, Faker-el-din did not think proper to wait this storm. He had formed connexions in Italy, on which he built great hopes, and determined to go in person to solicit the succours they had promised him; persuaded that his presence would increase the zeal of his friends, while his absence might appease the resentment of his enemies. He therefore embarked at Bairout; and after resigning the administration to his son Ali, repaired to the court of the Medici at Florence. The arrival of an Oriental prince in Italy did not fail to attract the public attention. Inquiry was made into his nation, and the origin of the Drufes became a popular topic of research. Their history and religion were found to be so little known, as to leave it a matter of doubt whether they should be classed with the Mahometans or Christians. The Crusades were called to mind; and it was soon suggested, that a people who had taken refuge in the mountains, and were enemies to the natives, could be no other than the offspring of the Crusaders.

This idle conceit was too favourable to Faker-el-din for him to endeavour to disprove it: he was artful enough, on the contrary, to pretend he was related to the house of Loraine; and the missionaries and merchants, who promised themselves a new opening for conversion and commerce, encouraged his pretensions. When an opinion is in vogue, every one discovers new proofs of its certainty. The learned in etymology, struck with the resemblance of the names, insisted, that Drufes and Dreux, must be the same word; and on this foundation formed the system of a pretended colony of French Crusaders, who, under the conduct of a Comte de Dreux, had formed a settlement in Lebanon. This hypothesis, however, was completely overthrown by the remark, that the name of the Drufes is to be found in the itinerary of Benjamin of Tudela, who travelled before the time of the Crusades. Indeed the futility of it ought to have been sufficiently apparent at first, from the single consideration, that had they been descended from any nation of the Franks, they must have retained at least the traces of some European language; for a people, retired into a separate district, and living distinct from the natives of the country, do not lose their language. That of the Drufes, however, is very pure Arabic, without a single word of European origin. The real derivation of the name of this people has been long in our possession, without our knowing it. It originates from the founder of the sect of Mohammed-ben-Ismael, who was surnamed *El-Dorzi*, and not

^{Drufes.} *El-Darari*, as it is usually printed: the confusion of these two words, so different in our writing, arises from the figure of the two Arabic letters *r* and *z*, which have only this difference, that the *z* has a point over it, frequently omitted or effaced in the manuscripts.

After a stay of nine years in Italy, Faker-el-din returned to resume the government of his country. During his absence, his son Ali had repulsed the Turks, appeased discontents, and maintained affairs in tolerable good order. Nothing remained for the emir, but to employ the knowledge he could not but have acquired, in perfecting the internal administration of government, and promoting the welfare of the nation; but instead of the useful and valuable arts, he wholly abandoned himself to the frivolous and expensive, for which he had imbibed a passion while in Italy. He built numerous villas, constructed baths, and planted gardens: he even presumed, without respect to the prejudices of his country, to employ the ornaments of painting and sculpture, notwithstanding these are prohibited by the Koran.

The consequences of this conduct soon manifested themselves: the Drufes, who paid the same tribute as in time of war, became dissatisfied. The Yamani faction were roused; the people murmured at the expences of the prince; and the luxury he displayed renewed the jealousy of the pachas. They attempted to levy greater tribute: hostilities again commenced, and Faker-el-din repulsed the forces of the pachas; who took occasion, from this resistance, to render him suspected by the sultan himself. Amurath III. incensed that one of his subjects should dare to enter into a competition with him, resolved on his destruction; and the pacha of Damascus received orders to march, with all his forces, against Bairout, the usual residence of Faker-el-din; while 40 galleys invested it by sea, and cut off all communication.

The emir, who depended on his good fortune and succours from Italy, determined at first to brave the storm. His son Ali, who commanded at Safad, was ordered to oppose the progress of the Turkish army: and in fact he bravely resisted them, notwithstanding the great disparity of his forces; but after two engagements, in which he had the advantage, being slain in a third attack, the face of affairs was greatly changed, and every thing went to ruin. Faker-el-din, terrified at the loss of his troops, afflicted at the death of his son, and enfeebled by age and a voluptuous life, lost both courage and presence of mind. He no longer saw any resource but in a peace, which he sent his second son to solicit of the Turkish admiral, whom he attempted to seduce by presents; but the admiral detaining both the presents and envoy, declared he would have the prince himself. Faker-el-din, intimidated, took to flight, and was pursued by the Turks, now masters of the country. He took refuge on the steep eminence of Nilha, where they besieged him ineffectually for a whole year, when they left him at liberty; but shortly after, the companions of his adversity, wearied with their sufferings, betrayed and delivered him up to the Turks. Faker-el-din, though in the hands of his enemies, conceived hopes of pardon, and suffered himself to be carried to Constantinople; where

Drufes.

where Amurath, pleased to behold at his feet a prince so celebrated, at first treated him with the benevolence which arises from the pride of superiority; but soon returning to his former jealousies, yielded to the instigations of his courtiers, and, in one of his violent fits of passion, ordered him to be strangled, about the year 1631.

After the death of Faker-el-din, the posterity of that prince still continued in possession of the government, though at the pleasure, and as vassals, of the Turks. This family failing in the male line at the beginning of the last century, the authority devolved, by the election of the shaiks, on the house of Shelah, in which it still continues. The only emir of that house, whose name deserves to be preserved, is the emir Melhem, who reigned from 1740 to 1759; in which interval he retrieved the losses of the Drufes, and restored them to that consequence which they had lost by the defeat of Faker-el-din. Towards the end of his life, about the year 1754, Melhem, wearied with the cares of government, abdicated his authority, to live in religious retirement, after the manner of the Okkals; but the troubles that succeeded occasioned him once more to resume the reins of government, which he held till 1759, when he died, universally regretted.

He left three sons, minors; the eldest of whom ought, according to the custom of the country, to have succeeded him; but being only 11 years of age, the authority devolved on his uncle Mansour, agreeably to a law very general in Asia, which wills the people to be governed by a sovereign who has arrived at years of maturity. The young prince was but little fitted to maintain his pretensions; but a Maronite, named Sad-el-Kouri, to whom Melhem had intrusted his education, took this upon himself. Aspiring to see his pupil a powerful prince, that he might himself become a powerful vizir, he made every exertion to advance his fortune. He first retired with him to Djebail, in the Kesraouan, where the emir Yousef possessed large domains, and there undertook to conciliate the Maronites, by embracing every opportunity to serve both individuals and the nation. The great revenues of his pupil, and the moderation of his expenditure, amply furnished him with the means. The farm of the Kesraouan was divided between several shaiks, with whom the Porte was not very well satisfied. Sad treated for the whole with the pacha of Tripoli, and got himself appointed sole receiver. The Motoualis of the valley of Balbec had for some years before made several encroachments on Lebanon, and the Maronites began to be alarmed at the near approach of these intolerant Mahometans. Sad purchased of the pacha of Damascus a permission to make war upon them; and in 1763 drove them out of the country. The Drufes were at that time divided into two factions: Sad united his interest with those who opposed Mansour, and secretly prepared the plot which was to raise the nephew on the ruin of the uncle.

At this period the Arab Daher, who had made himself master of Galilee, and fixed his residence at Acre, disquieted the Porte by his progress and pretensions; to oppose him, the Divan had just united the pachalics of Damascus, Saide, and Tripoli, in the

hands of Osman and his children; and it was evident that an open war was not very remote. Mansour, who dreaded the Turks too much to resist them, made use of the policy usual on such occasions, pretending a zeal for their service, while he secretly favoured their enemy. This was a sufficient motive for Sad to pursue measures directly opposite. He supported the Turks against the faction of Mansour, and manœuvred with so much good fortune or address as to depose that emir in 1770, and place Yousef in his government.

In the following year Ali Bey declared war, and attacked Damascus. Yousef, called on by the Turks, took part in the quarrel, but without being able to draw the Drufes from their mountains to enter into the army of the Ottomans. Besides their natural repugnance, at all times, to make war out of their country, they were on this occasion too much divided at home to quit their habitations, and they had reason to congratulate themselves on the event. The battle of Damascus ensued; and the Turks, as we have already seen, were completely routed. The pacha of Saide escaping from this defeat, and not thinking himself in safety in that town, sought an asylum even in the house of the emir Yousef. The moment was unfavourable; but the face of affairs soon changed by the flight of Mohammed Bey. The emir, concluding that Ali Bey was dead, and not imagining that Daher was powerful enough singly to maintain the quarrel, declared openly against him. Saide was threatened with a siege, and he detached 1500 men of his faction to its defence; while himself in person, prevailing on the Drufes and Maronites to follow him, made an incursion with 25,000 peasants into the valley of Bekaa; and in the absence of the Motoualis, who had joined the army of Daher, laid the whole country waste with fire and sword from Balbec to Tyre.

While the Drufes, proud of this exploit, were marching in disorder towards the latter city, 500 Motoualis, informed of what had happened, flew from Acre, inflamed with rage and despair, and fell with such impetuosity on their army as to give them a complete overthrow. Such was the surprise and confusion of the Drufes, that, imagining themselves attacked by Daher himself, and betrayed by their companions, they turned their swords on each other as they fled. The steep declivities of Djezin, and the pine woods which were in the route of the fugitives, were strewed with dead, but few of whom perished by the hands of the Motoualis.

The emir Yousef, ashamed of this defeat, escaped to Dair-el-Kamar, and shortly after attempted to take revenge; but being again defeated in the plain between Saide and Sour (Tyre), he was constrained to resign to his uncle Mansour the ring, which among the Drufes is the symbol of command. In 1773 he was restored by a new revolution; but he could not support his power but at the expence of a civil war. In order, therefore, to prevent Bairout falling into the hands of the adverse faction, he requested the assistance of the Turks, and demanded of the pacha of Damascus a man of sufficient abilities to defend that city. The choice fell on an adventurer, who from his subsequent fortune, merits to be made known.

This man, named Ahmad, was a native of Bosnia, and

Drufes.

Drufes.

and spoke the Sclavonian as his mother tongue, as the Ragusan captains, with whom he conversed in preference to those of every other nation, assert. It is said, that flying from his country at the age of 16, to escape the consequences of an attempt to violate his sister-in-law, he repaired to Constantinople, where, destitute of the means of procuring subsistence, he sold himself to the slave merchants to be conveyed to Egypt; and, on his arrival at Cairo, was purchased by Ali Bey, who placed him among his Mamelukes.

Ahmad was not long in distinguishing himself by his courage and address. His patron employed him on several occasions in dangerous *coups de main*, such as the assassination of such beys and cachefs as he suspected; of which commissions he acquitted himself so well as to acquire the name of *Djezzar*, which signifies *Cut-throat*. With this claim to his friendship, he enjoyed the favour of Ali until it was disturbed by an accident.

This jealous bey having proscribed one of his benefactors called Saleh Bey, commanded Djezzar to cut off his head. Either from humanity or some secret friendship for the devoted victim, Djezzar hesitated, and even remonstrated against the order. But learning the next day that Mohammed Bey had executed the commission, and that Ali had spoken of him not very favourably, he thought himself a lost man, and, to avoid the fate of Saleh Bey, escaped unobserved, and reached Constantinople. He there solicited employment suitable to his former rank; but meeting, as is usual in capitals, with a great number of rivals, he pursued another plan, and went to seek his fortune in Syria as a private soldier. Chance conducted him among the Drufes, where he was hospitably entertained, even in the house of the kiaya of the emir Yousef. From thence he repaired to Damascus, where he soon obtained the title of *Aga*, with a command of five pair of colours, that is to say, of 50 men; and he was thus situated when fortune destined him to the government of Bairout.

Djezzar was no sooner established there than he took possession of it for the Turks. Yousef was confounded at this proceeding. He demanded justice at Damascus; but finding his complaints treated with contempt, entered into a treaty with Daher, and concluded an offensive and defensive alliance with him at Ras-el-aen, near to Sour. No sooner was Daher united with the Drufes than he laid siege to Bairout by land, whilst two Russian frigates, whose service was purchased by 600 purses, cannonaded it by sea. Djezzar was compelled to submit to force, and, after a vigorous resistance, gave up the city, and surrendered himself prisoner. Shaik Daher, charmed with his courage, and flattered with the preference he had given him in the surrender, conducted him to Acre, and showed him every mark of kindness. He even ventured to trust him with a small expedition into Palestine; but Djezzar, on approaching Jerusalem, went over to the Turks, and returned to Damascus.

The war of Mohammed Bey breaking out, Djezzar offered his service to the captain pacha, and gained his confidence. He accompanied him to the siege of Acre; and that admiral having destroyed Daher, and finding no person more proper than Djezzar to accomplish the

designs of the Porte in that country, named him pacha of Saide.

Being now, in consequence of this revolution, superior lord to the emir Yousef, Djezzar is mindful of injuries in proportion as he has reason to accuse himself of ingratitude. By a conduct truly Turkish, feigning alternately gratitude and resentment, he is alternately on terms of dispute and reconciliation with him, continually exacting money as the price of peace, or an indemnity for war. His artifices have succeeded so well, that within the space of five years he has extorted from the emir four millions of French money (above 160,000l.); a sum the more astonishing, as the farm of the country of the Drufes did not then amount to 100,000 livres (4000l.)

In 1784, he made war on him, deposed him, and bestowed the government on the emir of the country of Hafbeya, named Ismael. Yousef, having once more purchased his favour, returned towards the end of the same year to Dair-el Kamar, and even courted his confidence so far as to wait on him at Acre, from whence nobody expected him to return; but Djezzar is too cunning to shed blood while there are any hopes of getting money: he released the prince, and sent him back with every mark of friendship. Since that period the Porte has named him pacha of Damascus, while he also retained the sovereignty of the pachalic of Acre, and of the country of the Drufes.

As to the religion of the Drufes: What has been already said of the opinions of Mohammed-ben-Ismael may be regarded as the substance of it. They practise neither circumcision, nor prayers, nor fasting; they observe neither festivals nor prohibitions. They drink wine, eat pork, and allow marriage between brothers and sisters, though not between fathers and children. From this we may conclude, with reason, that the Drufes have no religion; yet one class of them must be excepted, whose religious customs are very peculiar. Those who compose it are to the rest of the nation what the initiated were to the profane; they assume the name of *Okkals*, which means spiritualists, and bestow on the vulgar the epithet of *Djabel*, or ignorant: they have various degrees of initiation, the highest orders of which require celibacy. These are distinguishable by the white turban they affect to wear, as a symbol of their purity; and so proud are they of this supposed purity, that they think themselves sullied by even touching a profane person. If you eat out of their plate, or drink out of their cup, they break them; and hence the custom, so general in this country, of using vases with a sort of cock, which may be drank out of without touching them with the lips. All their practices are enveloped in mysteries: their oratories always stand alone, and are constantly situated on eminences: in these they hold their secret assemblies, to which women are admitted. It is pretended they perform ceremonies there in presence of a small statue resembling an ox or a calf; whence some have pretended to prove that they are descended from the Samaritans. But besides that the fact is not well ascertained, the worship of the ox may be deduced from other sources.

They have one or two books which they conceal with the greatest care; but chance has deceived their jealousy; for in a civil war which happened 9 or 10

Drufes.

Druses.

years ago, the emir Yousef, who is *Djabel* or ignorant, found one among the pillage of one of their oratories. M. Volney was assured, by persons who had read it, that it contains only a mystic jargon, the obscurity of which doubtless renders it valuable to adepts. Hakem B'amr-ellah is there spoken of, by whom they mean God incarnated in the person of the caliph. It likewise treats of another life, of a place of punishment, and a place of happiness where the Okkals shall of course be most distinguished. Several degrees of perfection are mentioned, to which they arrive by successive trials. In other respects, these sectaries have all the insolence and all the fears of superstition: they are not communicative, because they are weak; but it is probable that, were they powerful, they would be promulgators and intolerant.

The rest of the Druses, strangers to this spirit, are wholly indifferent about religious matters. The Christians who live in their country pretend that several of them believe in the metempsychosis; that others worship the sun, moon, and stars: all which is possible; for, as among the Anfaria, every one, left to his own fancy, follows the opinion that pleases him most; and these opinions are those which present themselves most naturally to unenlightened minds. When among the Turks, they affect the exterior of Mahometans, frequent the mosques, and perform their ablutions and prayers. Among the Maronites, they accompany them to church, and, like them, make use of holy water. Many of them, importuned by the missionaries, suffer themselves to be baptized; and if solicited by the Turks, receive circumcision, and conclude by dying neither Christians nor Mahometans; but they are not so indifferent in matters of civil policy.

The Druses may be divided into two classes; the common people; and the people of eminence and property, distinguished by the title of shaiks and emirs, or descendants of princes. The greater part are cultivators, either as farmers or proprietors; every man lives on his inheritance, improving his mulberry trees and vineyards: in some districts the grow tobacco, cotton, and some grain; but the quantity of these is inconsiderable. It appears that at first all the lands were, as formerly in Europe, in the hands of a small number of families. But to render them productive, the great proprietors were forced to sell part of them, and let leases; which subdivision is become the chief source of the power of the state, by multiplying the number of persons interested in the public weal: there still exists, however, some traces of the original inequality, which even at this day produces pernicious effects. The great property possessed by some families gives them too much influence in all the measures of the nation; and their private interests have too great weight in every public transaction. Their history, for some years back, affords sufficient proofs of this; since all the civil or foreign wars in which they have been engaged have originated in the ambition and personal views of some of the principal families, such as the Lesbeks, the Djambelats, the Ismaels of Solyma, &c. The shaiks of these houses, who alone possess one-tenth part of the country, procured creatures by their money, and at last involved all the Druses in their dissensions. It must be owned, however, that possibly to this conflict between contending parties the whole nation owes

the good fortune of never having been enslaved by its chief.

Druses.

This chief, called *Hakem* or governor, also *Emir* or prince, is a sort of king or general, who unites in his own person the civil and military powers. His dignity is sometimes transmitted from father to son, sometimes from one brother to another; and the succession is determined rather by force than any certain laws. Females can in no case pretend to this inheritance. They are already excluded from succession in civil affairs, and consequently can still less expect it in political: in general, the Asiatic governments are too turbulent, and their administration renders military talents too necessary, to admit of the sovereignty of women. Among the Druses, the male line of any family being extinguished, the government devolves to him who is in possession of the greatest number of suffrages and resources. But the first step is to obtain the approbation of the Turks, of whom he becomes the vassal and tributary. It even happens, that, not unfrequently to assert their supremacy, they name the Hakem, contrary to the wishes of the nation, as in the case of Ismael Hasbeya, raised to that dignity by Djezzar; but this constraint lasts no longer than it is maintained by that violence which gave it birth. The office of the governor is to watch over the good order of the state, and to prevent the emirs, shaiks, and villages, from making war on each other: in case of disobedience, he may employ force. He is also at the head of the civil power, and names the cadis, only always reserving to himself the power of life and death. He collects the tribute, from which he annually pays to the pacha a stated sum. This tribute varies in proportion as the nation renders itself more or less formidable: at the beginning of this century, it amounted to 160 purses, 8330l.; but Melhem forced the Turks to reduce it to 60. In 1784, Emir Yousef paid 80 and promised 90. This tribute, which is called *Miri*, is imposed on the mulberry trees, vineyards, cotton, and grain. All sown land pays in proportion to its extent; every foot of mulberries is taxed at three medins, or three sols nine deniers (not quite twopence). A hundred feet of vineyard pays a piastre or 40 medins; and fresh measurements are often made to preserve a just proportion. The shaiks and emirs have no exemption in this respect; and it may be truly said they contribute to the public stock in proportion to their fortune. The collection is made almost without expence. Each man pays his contingent at Dair-el-Kamar, if he pleases, or to the collectors of the prince, who make a circuit round the country after the crop of silks. The surplus of this tribute is for the prince; so that it is his interest to reduce the demands of the Turks, as it would be likewise to augment the impost: but this measure requires the sanction of the shaiks, who have the privilege of opposing it. Their consent is necessary, likewise, for peace and war. In these cases, the emir must convoke general assemblies, and lay before them the state of his affairs. There every shaik, and every peasant who has any reputation for courage or understanding, is entitled to give his suffrage; so that this government may be considered as a well-proportioned mixture of monarchy, aristocracy, and democracy. Every thing depends on circumstances: if the governor be a man of ability, he is absolute; if

Druses. if weak, a cypher. This proceeds from the want of fixed laws; a want common to all Asia, and the radical cause of all the disorders in the governments of the Asiatic nations.

Neither the chief nor the individual emirs maintain troops; they have only persons attached to the domestic service of their houses, and a few black slaves. When the nation makes war, every man, whether shaik or peasant, able to bear arms, is called upon to march. He takes with him a little bag of flour, a musket, some bullets, a small quantity of powder, made in his village, and repairs to the rendezvous appointed by the governor. If it be a civil war, as sometimes happens, the servants, the farmers, and their friends, take up arms for their patron, or the chief of their family, and repair to his standard. In such cases, the parties irritated frequently seem on the point of proceeding to the last extremities; but they seldom have recourse to acts of violence, or attempt the death of each other; mediators always interpose, and the quarrel is appeased the more readily as each patron is obliged to provide his followers with provisions and ammunition. This system, which produces happy effects in civil troubles, is attended with great inconvenience in foreign wars, as sufficiently appeared in that of 1784. Djezzar, who knew that the whole army lived at the expence of the emir Youlef, aimed at nothing but delay, and the *Druses*, who were not displeased at being fed for doing nothing, prolonged the operations; but the emir, wearied of paying, concluded a treaty, the terms of which were not a little rigorous for him, and eventually for the whole nation, since nothing is more certain than that the interests of a prince and his subjects are always inseparable.

"The ceremonies to which I have been a witness on these occasions (says M. Volney), bear a striking resemblance to the customs of ancient times. When the emir and the shaiks had determined on war at Dair-el-Kamar, cryers in the evening ascended the summits of the mountain; and there began to cry with a loud voice: 'To war, to war; take your guns, take your pistols: noble shaiks, mount your horses; arm yourselves with the lance and sabre; rendezvous to-morrow at Dair-el Kamar. Zeal of God! zeal of combats!' This summons, heard from the neighbouring villages, was repeated there; and as the whole country is nothing but a chain of lofty mountains and deep valleys, the proclamation passed in a few hours to the frontiers. These voices, from the stillness of the night, the long resounding echoes, and the nature of the subject, had something awful and terrible in their effect. Three days after 15,000 armed men rendezvoused at Dair-el-Kamar, and operations might have been immediately commenced.

"We may easily imagine that troops of this kind no way resemble our European soldiers; they have neither uniforms, nor discipline, nor order. They are a crowd of peasants with short coats, naked legs, and muskets in their hands; differing from the Turks and Mamelukes in that they are all foot; the shaiks and emirs alone having horses, which are of little use from the rugged nature of the country. War there can only be a war of posts. The *Druses* never risk themselves in the plain; and with reason: for they would be unable to stand the shock of cavalry, having no bayonets to their muskets. The whole art consists in

climbing rocks, creeping among the bushes and blocks of stone; from whence their fire is the more dangerous, as they are covered; fire at their ease, and by hunting and military sports have acquired the habit of hitting a mark with great dexterity. They are accustomed to sudden inroads, attacks by night, ambuscades, and all those *coups de main* which require to fall suddenly on, and come to close fight with the enemy. Ardent in improving their success, easily dispirited, and prompt to resume their courage; daring even to temerity, and sometimes ferocious, they possess above all two qualities essential to the excellency of any troops; they strictly obey their leaders, and are endowed with a temperance and vigour of health at this day unknown to most civilized nations. In the campaign of 1784, they passed three months in the open air without tents or any other covering than a sheep skin; yet were there not more deaths or maladies than if they had remained in their houses. Their provisions consisted, as at other times, of small loaves baked on the ashes or on a brick, raw onions, cheese, olives, fruits, and a little wine. The table of the chiefs was almost as frugal; and we may affirm, that they subsisted 100 days, on what the same number of Englishmen or Frenchmen would not have lived ten. They have no knowledge of the science of fortification, the management of artillery, or encampments, nor in a word, any thing which constitutes the art of war. But had they among them a few persons versed in military science, they would readily acquire its principles, and become a formidable soldiery. This would be the more easily effected, as their mulberry plantations and vineyards do not occupy them all the year, and they could afford much time for military exercises."

By the last estimates, according to M. Volney's information, the number of men able to bear arms was 40,000, which supposes a total population of 120,000; no addition is to be made to this calculation, since there are no *Druses* in the cities or on the coast. As the whole country contains only 110 square leagues, there results for every league 1090 persons; which is equal to the population of our richest provinces. To render this more remarkable, it must be observed that the soil is not fertile, that a great many eminences remain uncultivated, that they do not grow corn enough to support themselves three months in the year, that they have no manufactures, and that all their exportations are confined to silks and cottons, the balance of which exceeds very little the importation of corn from the Hauran, the oils of Palestine, and the rice and coffee they procure from Bairout. Whence arises then such a number of inhabitants within so small a space? "I can discover no other cause (says our author), than that ray of liberty which glimmers in this country. Unlike the Turks, every man lives in a perfect security of his life and property. The peasant is not richer than in other countries; but he is free. 'He fears not,' as I have often heard them say, 'that the Aga, the Kaimmakam, or the Pacha, should send their Djendis to pillage his house, carry off his family, or give him the bastinado.' Such oppressions are unknown among these mountains. Security, therefore, has been the original cause of population, from that inherent desire which all men have to multiply themselves wherever they find an easy subsistence. The frugality of
the

Drufes.

the nation, which is content with little, has been a secondary, and not less powerful reason; and a third is the emigration of a number of Christian families, who daily desert the Turkish provinces to settle in Mount Lebanon, where they are received with open arms by the Maronites from similarity of religion, and by the Drufes from principles of toleration, and a conviction how much it is the interest of every country to multiply the number of its cultivators, consumers, and allies.

“The comparison which the Drufes often have an opportunity of making between their situation and that of other subjects of the Turkish government, has given them an advantageous opinion of their superiority, which, by a natural effect, has an influence on their personal character. Exempt from the violence and insults of despotism, they consider themselves as more perfect than their neighbours, because they have the good fortune not to be equally debased. Hence they acquire a character more elevated, energetic, and active; in short, a genuine republican spirit. They are considered throughout the Levant as restless, enterprising, hardy, and brave even to temerity. Only 300 of them have been seen to enter Damascus in open day, and spread around them terror and carnage. No people are more nice than they with respect to the point of honour: any offence of that kind, or open insult, is instantly punished by blows of the kandjur or the musket; while among the inhabitants of the towns it only excites injurious retorts. This delicacy has occasioned in their manners and discourse a reserve, or, if you will, a politeness, which one is astonished to discover among peasants. It is carried even to dissimulation and falsehood, especially among the chiefs, whose greater interests demand greater attentions. Circumspection is necessary to all, from the formidable consequences of that retaliation of which I have spoken. These customs may appear barbarous to us; but they have the merit of supplying the deficiency of regular justice, which is necessarily tedious and uncertain in these disorderly and almost anarchical governments.

“The Drufes have another point of honour, that of hospitality. Whoever presents himself at their door in the quality of a suppliant or passenger, is sure of being entertained with lodging and food in the most generous and unaffected manner. M. Volney often saw the lowest peasants give the last morsel of bread they had in their houses to the hungry traveller; and when it was observed to them that they wanted prudence, their answer was, ‘God is liberal and great, and all men are brethren.’ There are, therefore, no inns in their country any more than in the rest of Turkey. When they have once contracted with their guest the sacred engagement of bread and salt, no subsequent event can make them violate it. Various instances of this are related, which do honour to their character. A few years ago, an aga of the janissaries having been engaged in a rebellion, fled from Damascus and retired among the Drufes. The pacha was informed of this, and demanded him of the emir, threatening to make war on him in case of refusal. The emir demanded him of the shaik Talhouk, who had received him; but the indignant shaik replied, ‘When have you known the Drufes deliver up their guests? Tell the emir, that as long as Talhouk shall preserve his beard, not

Drufes.

a hair of the head of his suppliant shall fall!’ The emir threatened him with force; Talhouk armed his family. The emir, dreading a revolt, adopted a method practised as juridical in that country. He declared to the shaik, that he would cut down 50 mulberry trees a-day until he should give up the aga. He proceeded as far as a thousand, and Talhouk still remained inflexible. At length the other shaiks, enraged, took up the quarrel; and the commotion was about to become general, when the aga, reproaching himself with being the cause of so much mischief, made his escape without the knowledge even of Talhouk.

“The Drufes have also the prejudices of the Bedouins respecting birth; like them, they pay great respect to the antiquity of families; but this produces no essential inconveniences. The nobility of the emirs and shaiks does not exempt them from paying tribute in proportion to their revenues. It confers on them no prerogatives, either in the attainment of landed property or public employments. In this country, no more than in all Turkey, are they acquainted with game laws, or glebes, or seigniorial or ecclesiastical tithes, franc fiefs or alienation fines; every thing is held in freehold: Every man, after paying his miri and his rent, is master of his property. In short, by a particular privilege, the Drufes pay no fine for their succession; nor does the emir, like the sultan, arrogate to himself original and universal property: there exists, nevertheless, in the law of inheritance, an imperfection which produces disagreeable effects. Fathers have, as in the Roman law, the power of preferring such of their children as they think proper: hence it has happened in several families of the shaiks, that the whole property has centered in the same person, who has perverted it to the purpose of intriguing and caballing, while his relations remain, as they will express it, *princes of olives and cheese*; that is to say, poor as peasants.

“In consequence of their prejudices, the Drufes do not choose to make alliances out of their own families. They invariably prefer their relation, though poor, to a rich stranger; and poor peasants have been known to refuse their daughters to merchants of Saide and Bairout, who possessed from twelve to fifteen thousand piastres. They observe also, to a certain degree, the custom of the Hebrews, which directed that a brother should espouse his brother’s widow; but this is not peculiar to them, for they retain that, as well as several other customs of that ancient people, in common with other inhabitants of Syria and all the Arab tribes.

“In short, the proper and distinctive character of the Drufes is a sort of republican spirit, which gives them more energy than any other subjects of the Turkish government; and an indifference for religion, which forms a striking contrast with the zeal of the Mahometans and Christians. In other respects, their private life, their customs and prejudices, are the same with other orientals. They may marry several wives, and repudiate them when they choose; but, except by the emir and a few men of eminence, that is rarely practised. Occupied with their rural labours, they experience neither artificial wants, nor those inordinate passions which are produced by the idleness of the inhabitants of cities and towns. The veil, worn by

Drufes,
Drufius.

by their women, is of itself a prefervative againft those defires which are the occafion of fo many evils in fociety. No man knows the face of any other woman than his wife, his mother, his fiftter, and fiftters-in-law. Every man lives in the bofom of his own family, and goes little abroad. The women, thofe even of the fhaiks, make the bread, roaft the coffee, wafh the linen, cook the victuals, and perform all domeftic offices. The men cultivate their lands and vineyards, and dig canals for watering them. In the evening they fometimes affemble in the court, the area, or houfe of the chief of the village or family. There, feated in a circle, with legs croffed, pipes in their mouths, and poniards at their belts, they difcourfe of their various labours, the fcarcity or plenty of their harvefts, peace or war, the conduct of the emir, or the amount of the taxes; they relate paff transactions, difcufs prefent interefts, and form conjectures on the future. Their children, tired with play, come frequently to listen; and a ftranger is furprifed to hear them, at ten or twelve years old, recounting, with a ferious air, why Djezzar declared war againft the emir Youfef, how many purfes it coft that prince, what augmentation there will be of the miri, how many mufkets there were in the camp, and who had the beft mare. This is their only education. They are neither taught to read the pfalms as among the Maronites, nor the Koran like the Mahometans; hardly do the fhaiks know how to write a letter. But if their mind be deftitute of ufeul or agreeable information, at leaft it is not pre-occupied by falfe and hurtful ideas; and, without doubt, fuch natural ignorance is well worth all our artificial folly. This advantage refults from it, that their underftandings being nearly on a level, the inequality of conditions is lefs perceptible. For, in fact, we do not perceive among the Drufes that great diftance which, in moft other focieties, degrades the inferior, without contributing to the advantage of the great. All, whether fhaiks or peafants, treat each other with that rational familiarity, which is equally remote from rudeneff and fervility. The grand emir himfelf is not a different man from the reft: he is a good country gentleman, who does not difdain admitting to his table the meaneft farmer. In a word, their manners are thofe of ancient times, and of that ruftic life which marks the origin of every nation; and prove, that the people among whom they are ftill found are as yet only in the infancy of the focial ftate."

DRUSIUS, JOHN, a Proteftant writer of great learning, born at Oudenarde in Flanders in 1555. He was defigned for the ftudy of divinity; but his father being outlawed, and deprived of his eftate, they both retired to England, where the fon became profeflor of the oriental languages at Oxford: but upon the pacification of Ghent, they returned to their own country, where Drufius was alfo appointed profeflor of the oriental languages. From thence he removed to Friefland, where he was admitted Hebrew profeflor in the univerfity of Franeker; the functions of which he difcharged with great honour till his death in 1616. His works fhew him to have been well skilled in Hebrew; and the States General employed him in 1600 to write notes on the moft difficult paffages in the Old Teftament, with a penfion of 400 florins a-year: but being

frequently difturbed in this undertaking, it was not publifhed till after his death. He held a vaft correffpondence with the learned; for befides letters in Hebrew, Greek, and other languages, there were found 2300 Latin letters among his papers. He had a fon John, who died in England at 21, and was a prodigy for his early acquisition of learning; he writes Notes on the Proverbs of Solomon, with many letters and verfes in Hebrew.

DRYADS, in the heathen theology, a fort of deities, or nymphs, which the ancients thought inhabited groves and woods. They differed from the Hamadryades; thefe latter being attached to fome particular tree, with which they were born, and with which they died; whereas the Dryades were goddeffes of trees and woods in general. See HAMADRYADES.

DRYAS, in *Botany*; a genus of plants belonging to the icolandria clafs; and in the natural method ranking under the 35th order, *Senticofe*. See BOTANY *Index*.

DRYDEN, JOHN, one of the moft eminent English poets of the 17th century, defcended of a genteel family in Huntingdonfhire, was born in that county at Oldwincle 1631, and educated at Weftminfter fchool under Dr Bufhby. From thence he was removed to Cambridge in 1650, being elected fcholar of Trinity college, of which he appears, by his *Epithalamia Cantabrigienf.* 4to, 1662, to have been afterwards a fellow. Yet in his earlier days he gave no extraordinary indication of genius; for even the year before he quitted the univerfity, he wrote a poem on the death of Lord Haftings, which was by no means a preface of that amazing perfection in poetical powers which he afterwards poffeffed.

On the death of Oliver Cromwell he wrote fome heroic ftanzas to his memory; but on the Reftoration, being defirous of ingratiating himfelf with the new court, he wrote firft a poem entitled *Abræa Redux*, and afterwards a panegyric to the king on his coronation. In 1662, he addreffed a poem to the lord chancellor Hyde, prefented on New Year's day; and in the fame year a fatire on the Dutch. In 1668 appeared his *Annus Mirabilis*, which was a hiftorical poem in celebration of the duke of York's victory over the Dutch. Thefe pieces at length obtained him the favour of the crown; and Sir William Davenant dying the fame year, Mr Dryden was appointed to fucceed him as poet laureat. About this time alfo his inclination to write for the ftage feems firft to have fhown itfelf. For befides his concern with Sir William Davenant in the alteration of Shakefpeare's *Tempeft*, in 1669 he produced his *Wild Gallants*, a comedy. This met with very indifferant fucces; yet the author, not being difcouraged by its failure, foon publifhed his *Indian Emperour*. This finding a more favourable reception, encouraged him to proceed; and that with fuch rapidity, that in the key to the duke of Buckingham's Rehearfal he is recorded to have engaged himfelf by contract for the writing of four plays per year; and, indeed, in the years 1679 and 1680 he appears to have fulfilled that contract. To this unhappy neceffity that our author lay under, are to be attributed all thofe irregularities, thofe bombaftic flights, and fometimes even puerile exuberances, for which he has been fo feverely criticized;

Dryads
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Dryden.

Dryden.

ticised; and which, in the unavoidable hurry in which he wrote, it was impossible he should find time either for lopping away or correcting.

In 1675, the earl of Rochester, whose envious and malevolent disposition would not permit him to see growing merit meet with its due reward, and was therefore sincerely chagrined at the very just applause with which Mr Dryden's dramatic pieces had been received, was determined if possible to shake his interest at court; and succeeded so far as to recommend Mr Crowne, an author by no means of equal merit, and at that time of an obscure reputation, to write a mask for the court, which certainly belonged to Mr Dryden's office as poet laureat.—Nor was this the only attack, nor indeed the most potent one, that Mr Dryden's justly acquired fame drew on him. For, some years before, the duke of Buckingham, a man of not much better character than Lord Rochester, had most severely ridiculed several of our author's plays in his admired piece called the *Rehearsal*. But though the intrinsic wit which runs through that performance cannot even to this hour fail of exciting our laughter, yet at the same time it ought not to be the standard on which we should fix Mr Dryden's poetical reputation, if we consider, that the pieces there ridiculed are not any of those looked on as the *chef d'œuvre* of this author; that the very passages burlesqued are frequently, in their original places, much less ridiculous than when thus detached, like a rotten limb, from the body of the work; and exposed to view with additional distortions, and divested of that connexion with the other parts, which, while preserved, gave it not only symmetry but beauty; and lastly, that the various inimitable beauties, which the critic has sunk in oblivion, are infinitely more numerous than the deformities which he has thus industriously brought forth to our more immediate inspection.

Mr Dryden, however, did not suffer these attacks to pass with impunity; for in 1679 there came out an Essay on Satire, said to be written jointly by that gentleman and the earl of Mulgrave, containing some very severe reflections on the earl of Rochester and the duchess of Portsmouth, who, it is not improbable, might be a joint instrument in the above-mentioned affront shown to Mr Dryden; and in 1681 he published his *Abfalom* and *Achitophel*, in which the well-known character of Zimri, drawn for the duke of Buckingham, is certainly severe enough to repay all the ridicule thrown on him by that nobleman in the character of Bayes.—The resentment shown by the different peers was very different. Lord Rochester, who was a coward as well as a man of the most depraved morals, basely hired three ruffians to cudgel Dryden in a coffeehouse: but the duke of Buckingham, as we are told, in a more open manner, took the task upon himself: and at the same time presented him with a purse containing no very trifling sum of money; telling him, that he gave him the beating as a punishment for his impudence, but bestowed that gold on him as a reward for his wit.

In 1680 was published a translation of Ovid's *Epistles* in English verse by several hands, two of which, together with the preface, were by Mr Dryden; and in 1682 came out his *Religio Laici*, designed as a defence of revealed religion, against Deists, Papists, &c. Soon after the accession of King James II. our author chan-

Dryden.

ged his religion for that of the church of Rome, and wrote two pieces in vindication of the Romish tenets; viz. *A Defence of the Papers* written by the late king, found in his strong box; and the celebrated poem, afterwards answered by Lord Halifax, entitled, *The Hind and the Panther*.—By this extraordinary step he not only engaged himself in controversy, and incurred much censure and ridicule from his cotemporary wits; but on the completion of the Revolution, being, on account of his newly-chosen religion, disqualified from bearing any office under the government, he was stripped of the laurel, which, to his still greater mortification, was bestowed on Richard Flecknoe, a man to whom he had a most settled aversion. This circumstance occasioned his writing the very severe poem called *Mac Flecknoe*.

Mr Dryden's circumstances had never been affluent; but now being deprived of this little support, he found himself reduced to the necessity of writing for mere bread. We consequently find him from this period engaged in works of labour as well as genius, viz. in translating the works of others; and to this necessity perhaps our nation stands indebted for some of the best translations extant. In the year he lost the laurel, he published the life of St Francis Xavier from the French. In 1693 came out a translation of Juvenal and Persius; in the first of which he had a considerable hand, and of the latter the entire execution. In 1695 was published his prose version of Frénoy's *Art of Painting*; and the year 1697 gave the world that translation of Virgil's works entire, which still does, and perhaps ever will, stand foremost among the attempts made on that author. The pectie pieces of this eminent writer, such as prologues, epilogues, epitaphs, elegies, songs, &c. are too numerous to specify here, and too much dispersed to direct the reader to. The greatest part of them, however, are to be found in a collection of miscellanies in 6 vols 12mo. His last work is what is called his *Fables*, which consists of many of the most interesting stories in Homer, Ovid, Boccace, and Chaucer, translated or modernized in the most elegant and poetical manner; together with some original pieces, among which is that amazing ode on St Cecilia's day, which, though written in the very decline of the author's life, and at a period when old age and distress conspired as it were to damp his poetic ardour, and clip the wings of fancy, yet possess so much of both, as would be sufficient to have rendered him immortal had he never written a single line besides.

Dryden married the lady Elizabeth Howard, sister to the earl of Berkshire, who survived him eight years; though for the last four of them she was a lunatic, having been deprived of her senses by a nervous fever.—By this lady he had three sons; Charles, John, and Henry. Of the eldest of these there is a circumstance related by Charles Wilson, Esq. in his life of Congreve, which seems so well attested, and is itself of so very extraordinary a nature, that we cannot avoid giving it a place here.—Dryden, with all his understanding, was weak enough to be fond of judicial astrology, and used to calculate the nativity of his children. When his lady was in labour with his son Charles, he being told it was decent to withdraw, laid his watch on the table, begging one of the ladies then present, in a most solemn manner, to take exact notice of the
very

Dryden. very minute that the child was born; which she did, and acquainted him with it. About a week after, when his lady was pretty well recovered, Mr Dryden took occasion to tell her that he had been calculating the child's nativity; and observed, with grief, that he was born in an evil hour: for Jupiter, Venus, and the Sun, were all under the earth, and the lord of his ascendant afflicted with a hateful square of Mars and Saturn. "If he lives to arrive at the 8th year," says he, "he will go near to die a violent death on his very birthday; but if he should escape, as I see but small hopes, he will in the 23d year be under the very same evil direction; and if he should escape that also, the 33d or 34th year is, I fear"—Here he was interrupted by the immoderate grief of his lady, who could no longer hear calamity prophesied to befall her son. The time at last came, and August was the inauspicious month in which young Dryden was to enter into the eighth year of his age. The court being in progress, and Mr Dryden at leisure, he was invited to the country seat of the earl of Berkshire, his brother-in-law, to keep the long vacation with him at Charlton in Wilts; his lady was invited to her uncle Mordaunt's to pass the remainder of the summer. When they came to divide the children, Lady Elizabeth would have him take John, and suffer her to take Charles: but Mr Dryden was too absolute, and they parted in anger; he took Charles with him, and she was obliged to be content with John. When the fatal day came, the anxiety of the lady's spirits occasioned such an agitation, as threw her into a violent fever, and her life was despaired of, till a letter came from Mr Dryden, reproving her for her womanish credulity, and assuring her that her child was well; which recovered her spirits, and in six weeks after she received an eclaircissement of the whole affair. Mr Dryden, either through fear of being reckoned superstitious, or thinking it a science beneath his study, was extremely cautious of letting any one know that he was a dealer in astrology; therefore could not excuse his absence, on his son's anniversary, from a general hunting match which Lord Berkshire had made, to which all the adjacent gentlemen were invited. When he went out, he took care to set the boy a double exercise in the Latin tongue, which he taught his children himself, with a strict charge not to stir out of the room till his return; well knowing the task he had set him would take up longer time. Charles was performing his duty, in obedience to his father; but, as ill fate would have it, the stag made towards the house; and the noise alarming the servants, they hastened out to see the sport. One of them took young Dryden by the hand, and led him out to see it also; when, just as they came to the gate, the stag being at bay with the dogs, made a bold push, and leaped over the court wall, which was very low and very old; and the dogs following, threw down a part of the wall 10 yards in length, under which Charles Dryden lay buried. He was immediately dug out; and after six weeks languishing in a dangerous way, he recovered. So far Dryden's prediction was fulfilled. In the 23d year of his age, Charles fell from the top of an old tower belonging to the Vatican at Rome, occasioned by a swimming in his head with which he was seized, the heat of the day being excessive. He again recovered, but was ever after in a languishing

sickly state. In the 33d year of his age, being returned to England, he was unhappily drowned at Windsor. He had with another gentleman swam twice over the Thames; but returning a third time, it was supposed he was taken with the cramp, because he called out for help, though too late. Thus the father's calculation proved but too prophetic.

At last, after a long life, harassed with the most laborious of all fatigues, viz. that of the mind, and continually made anxious by distress and difficulty, our author departed this life on the first of May 1701.—The day after Mr Dryden's death, the dean or Westminster sent word to Mr Dryden's widow, that he would make a present of the ground and all other abbey fees for the funeral: the lord Halifax likewise sent to the lady Elizabeth, and to Mr Charles Dryden, offering to defray the expences of our poet's funeral, and afterwards to bestow 500l. on a monument in the abbey; which generous offer was accepted. Accordingly, on Sunday following, the company being assembled, the corpse was put into a velvet hearse, attended by 18 mourning coaches. When they were just ready to move, Lord Jeffreys, son of Lord Chancellor Jeffreys, a name dedicated to infamy, with some of his rakish companions, riding by, asked whose funeral it was; and being told it was Mr Dryden's, he protested he should not be buried in that private manner; that he would himself, with the lady Elizabeth's leave, have the honour of the interment, and would bestow 1000l. on a monument in the abbey for him. This put a stop to their procession; and the lord Jeffreys, with several of the gentlemen who had alighted from their coaches, went up stairs to the lady, who was sick in bed. His lordship repeated the purport of what he had said below; but the lady Elizabeth refusing her consent, he fell on his knees, vowing never to rise till his request was granted. The lady under a sudden surprize fainted away: and Lord Jeffreys, pretending to have obtained her consent, ordered the body to be carried to Mr Russel's an undertaker in Cheapside, and to be left there till further orders. In the mean time the abbey was lighted up, the ground opened, the choir attending, and the bishop waiting some hours to no purpose for the corpse. The next day Mr Charles Dryden waited on the lord Halifax and the bishop; and endeavoured to excuse his mother, by relating the truth. Three days after the undertaker, having received no orders, waited on the lord Jeffreys; who pretended that it was a drunken frolic, that he remembered nothing of the matter, and he might do what he pleased with the body. Upon this the undertaker waited upon the lady Elizabeth, who desired a day's respite, which was granted. Mr Charles Dryden immediately wrote to the lord Jeffreys, who returned for answer, that he knew nothing of the matter, and would be troubled no more about it. Mr Dryden hereupon applied again to Lord Halifax and the bishop of Rochester, who absolutely refused to do any thing in the affair.

In this distress, Dr Garth, who had been Mr Dryden's intimate friend, sent for the corpse to the college of physicians, and proposed a subscription; which succeeding, about three weeks after Mr Dryden's decease, Dr Garth pronounced a fine Latin oration over the body, which was conveyed from the college, attended

Dryden. by a numerous train of coaches, to Westminster abbey, but in very great disorder. At last the corpse arrived at the abbey, which was all unlighted. No organ played, no anthem sung: only two of the singing boys preceded the corpse, who sung an ode of Horace, with each a small candle in their hand. When the funeral was over, Mr Charles Dryden sent a challenge to Lord Jeffreys: who refusing to answer it, he sent several others, and went often himself; but could neither get a letter delivered, nor admittance to speak to him: which so incensed him, that finding his lordship refused to answer him like a gentleman, he resolved to watch an opportunity, and brave him to fight, though with all the rules of honour; which his lordship hearing, quitted the town, and Mr Charles never had an opportunity to meet him, though he sought it to his death with the utmost application.

Mr Dryden had no monument erected to him for several years; to which Mr Pope alludes in his epitaph intended for Mr Rowe, in this line,

Beneath a rude and nameless stone he lies.

In a note upon which we are informed that the tomb of Mr Dryden was erected upon this hint by Sheffield duke of Buckingham, to which was originally intended this epitaph:

This *Sheffield* rais'd—The sacred dust below
Was *Dryden* once; the rest, who does not know?

Which was since changed into the plain inscription now upon it, viz.

J. DRYDEN,

Natus Aug. 9. 1631.

Mortuus Maii 1. 1701,

Johannes Sheffield, dux Buckinghamiensis fecit.

Mr Dryden's character has been very differently drawn by different hands, some of which have exalted it to the highest degree of commendation, and others debased it by the severest censure.—The latter, however, we must charge to that strong spirit of party which prevailed during great part of Dryden's time, and ought therefore to be taken with great allowances. Were we indeed to form a judgment of the author from some of his dramatic writings, we should perhaps be apt to conclude him a man of the most licentious morals; many of his comedies containing a great share of looseness, even extending to obscenity: But if we consider, that, as the poet tells us,

Those who live to please, must please to live;

if we then look back to the scandalous license of the age he lived in, the indigence which at times he underwent, and the necessity he consequently lay under of complying with the public taste however depraved; we shall surely not refuse our pardon to the compelled writer, nor our credit to those of his contemporaries who were intimately acquainted with him, and who have assured us there was nothing remarkably vicious in his personal character.

From some parts of his history he appears unsteady, and to have too readily temporized with the several revolutions in church and state. This however might in some measure have been owing to that natural timidity and diffidence in his disposition, which almost all

the writers seem to agree in his possessing. Congreve, whose authority cannot be suspected, has given us such an account of him, as makes him appear no less amiable in his private character as a man, than he was illustrious in his public one as a poet. In the former light, according to that gentleman, he was humane, compassionate, forgiving, and sincerely friendly: of an extensive reading, a tenacious memory, and a ready communication: gentle in the correction of the writings of others, and patient under the reprehension of his own deficiencies: easy of access himself, but slow and diffident in his advances to others; and of all men the most modest and the most easy to be discountenanced in his approaches either to his superiors or his equals. As to his writings, he is perhaps the happiest in the harmony of his numbers, of any poet who ever lived either before or since his time, not even Mr Pope himself excepted. His imagination is ever warm, his images noble, his descriptions beautiful, and his sentiments just and becoming. In his prose he is poetical without bombast, concise without pedantry, and clear without prolixity. His dramatic have, perhaps, the least merit of all his writings. Yet there are many of them which are truly excellent; though he himself tells us that he never wrote any thing in that way to please himself but his *All for Love*. This last, indeed, and his *Spanish Friar*, may be reckoned two of the best plays in our language.

DRYPIS, a genus of plants belonging to the pentandria class; and in the natural method ranking under the 22d order, *Caryophyllei*. See *BOTANY Index*.

DUBLIN, the metropolis of Ireland, the second city in his majesty's dominions, and esteemed the fifth for magnitude in Europe, is situated in the province of Leinster, in the county of Dublin, at the bottom of a large bay. The river Liffey, which here falls into the ocean, divides the town into two nearly equal parts. Formerly the city of Dublin was confined to the south side of the river. It was a place of great antiquity. Ptolemy, who flourished in the reign of Antoninus Pius, about the year 140, says, it was anciently called *Ascheled*. In 155, Alpinus, whose daughter Auliana was drowned in the Liffey, changed the name from *Ascheled* to *Auliana*. It was afterwards named *Dublana*, and Ptolemy calls it *Eblana*. *Dublana*, whence comes *Dublinum* and *Dublin*, is evidently derived from *Dub-leana*, "the place of the black harbour or lake," or rather "the lake of the sea," the bay of Dublin being frequently so called. This city has had a variety of names. The Irish call it *Drom-choll-coil*, "the brow of a hazel wood;" and in 181, Eogan king of Munster being on a royal tour, paid a visit to this place, which was then called *Atha Cliath Dubh-Line*, "the passage of the ford of hurdles over the black pool:" the harbour of Dublin was likewise known by the name of *Lean-Cliath*, or *Leam-Cliath*, from *Lean* or *Leam*, "a harbour;" and from *Cliath* or *Cliabb*, which literally signifies "a hurdle or any thing made of wicker work;" it also signified certain wears formed with hurdles, and placed in rivers and bays by the ancient Irish for the purpose of taking fish: whence any river, or bay wherein these wears were fixed had the name of *Cliath* or *Cliab*, annexed to it, to signify the establishment of a fishery. Dublin, therefore, being originally built on or near one of these harbours,

Dublin. harbours, was anciently called *Baly-lean-Cliath*, that is, "the town on the fishing harbour." It is described at the present day in the Irish language by the appellations of *Atb-Cliath*, "the ford of hurdles," and *Bally-atb-Cliath*, "the town of the ford of hurdles," the inhabitants having formerly had access to the river by hurdles laid on the low marshy grounds adjoining the water: and this name was also extended to the north side of the river, from a temporary bridge of hurdles thrown over the Anna Liffey, a corruption of *Auin Louiffa*, or "the swift river," so termed from the rapidity of the mountain floods. This side was enlarged by Mac Turkill the Danish prince, who, notwithstanding, fixed his habitation on the south side, and abandoned the northern town; which, from the original country of the invaders, was called *Eaglmantown*, since corrupted to *Oxmantown*. King Edgar, in the preface to his charter dated 964, mentions Ireland with its most noble city (*nobilissima civitas*) of *Dublin*. By the Fingalians it is called *Divelin*, and by the Welch *Dinas Dulin*, or *the city of Dulin*.

In 448, Alpin Mac Eachard, king of Dublin, and all his subjects, were converted to Christianity by St Patrick.

In the year 498, the Ostmen or Danes having entered the Liffey with a fleet of 60 sail, made themselves masters of Dublin and the adjacent country, and soon after environed the city with walls. About 1170 Dermot Mac Murrough, king of Leinster, having quarrelled with the other princes of the kingdom, a confederacy was formed against him by Roderick O'Connor, monarch of Ireland. Dermot applied to Henry II. king of England, who sent over a number of English adventurers, by whose assistance he was reinstated in his dominions; and in the year 1171, the descendants of the Danes still continuing to hold possession of Dublin, it was besieged and taken by a powerful party of the English under Raymond le Gros. Mac Turkill the Danish king escaped to his shipping: he returned, however, soon after with a strong fleet to recover the city, but was killed in the attempt, and in him ended the race of easterling princes in Ireland.

In 1172, Henry II. landed at Waterford, and obtained from Richard earl Strongbow (who married the daughter of Dermot Mac Murrough, and by compact was his successor) a surrender of the city of Dublin, where he built a pavilion of wicker work near St Andrew's church, then situated where Castlemarket lately stood, and there entertained several Irish princes, who voluntarily submitted to him on condition of being governed by the same laws as the people of England. Henry also held a parliament here. In 1173 he granted his first charter to Dublin, and by divers privileges encouraged a colony from Bristol to settle here.

In 1210, upwards of 20 Irish princes swore allegiance to King John at Dublin; engaging to establish the English laws and customs in the kingdom; and in the same year courts of judicature were instituted. In 1216, magna charta was granted to the Irish by Henry III. an entry of which was made in the red book of the exchequer at Dublin. In 1217, the city was granted to the citizens in fee-farm at 200 marks per annum; and in 1227 the above monarch ordained that the charter granted by King John should be kept in-

Dublin. violably. In 1404, the statutes of Kilkenny and Dublin were confirmed in a parliament held at this city under the earl of Ormond. The charter of the city of Dublin was renewed in 1609 by James I.

The civil government of the city was anciently under the management of a provost and bailiffs; in 1508, John le Decer was appointed the first provost, and Richard de St Olave and John Stakebold bailiffs. In 1409, the title of the chief magistrate was changed to that of mayor, when Thomas Cusack was appointed to the office, Richard Bove and Thomas Shortall being bailiffs: the office of bailiffs was changed to sheriffs in 1547. In 1660, Charles II. gave a collar of SS. and a company of foot guards to the mayor; and in 1665, this monarch conferred the title of lord mayor on the chief magistrate, to whom he also granted 500l. per annum in lieu of the foot company. Sir Daniel Bellingham was the first lord mayor of Dublin; Charles Lovet and John Quells were sheriffs the same year. In 1672, Arthur earl of Essex introduced new rules for the better government of the city; and in 1683 the Tholsel was built, for the purpose of the magistrates meeting to hold their courts, assemblies, &c.

In the 10th century, after the fortifications of Dublin were repaired by the Ostmen, the walls of the city, including those of the castle, did not occupy more than an Irish mile; they extended from Winetavern gate to Audeon's arch, and were continued from thence to where Newgate formerly stood; and from a plan published by John Speed in 1610, it appears that they were continued to Ormond's gate, or, as it has been since called, *Wormwood gate*; from thence to the Old bridge, and along the banks of the river to a very large portal called *Newman's tower*, nearly in the present site of the south entrance of Essex bridge; and from Newman's tower in an angular direction to Dame's gate, at the west end of Dame's street. From the gate at the south-west angle of the castle the wall ran to Nicholas gate, and was continued from thence to Newgate. The principal streets without the walls were, on the west, New row, Francis street, Thomas street, and James's street; on the south were Patrick street, Bride street, and Ship street; and on the east, Dame street, George's lane, and Stephen street. That space of ground now occupied by Crane lane, Temple bar, Fleet street, Lazar's hill, or as it is now called *South Townsend street*, Crampton, Aston's, George's, and Sir John Rogerfon's quays, &c. was then overflowed by the Liffey. On the north side of the river there were only Church street, Mary's lane, Hammond lane, and Pill lane, then built but on one side as far as Mary's abbey, which terminated the extent of that part of the town to the eastward; Grange Gorman, Stoney-batter, now called *Manor street*, and Glassmanogue, were then villages at some distance from the city; and at the latter the sheriffs have held their courts in times of the plague, as being remote from the stage of infection. In 1664, the inhabitants being numbered amounted to 2565 men, and 2986 women Protestants; and 1202 men and 1406 women, Roman Catholics, making in the whole 8459.

By comparing this account of the ancient state and boundaries of the metropolis with the following description of its present extent, population, and magnificence,

Dublin.

nificence, an idea will be readily formed of the amazing increase and improvement it has experienced within the course of a century.

Dublin is seated in view of the sea on the east, and a fine country which swells into gently-rising eminences on the north and west, while it towers boldly up in lofty mountains that bound the horizon on the south. The city itself cannot be seen to full advantage on entering the harbour: but the approach to it from thence exhibits a fine prospect of the country for improvement and cultivation, interspersed with numerous villas, that have a most agreeable effect to enliven this delightful scene, which, beginning at the water's edge, is continued all over the coast to the northward of the bay as far as the eye can reach, and is finely contrasted by a distant view of the Wicklow mountains to the south, where the conical hills, called the *Sugar Loaves*, contribute not a little, by the singularity of their appearance, to embellish the landscape, so extensive and picturesque as not to be equalled by any natural scenery in Europe, but the entrance of the bay of Naples, to which it bears a very striking resemblance.

The form of Dublin is nearly square, a figure that includes the largest area proportioned to its circumference. From the royal hospital at Kilmainham, at the western extremity of the town, to the east end of Townsend street, the length is two miles and a half, and its greatest breadth is computed to be of the same extent: hence the city is about 10 miles in circumference. Its increase within the last twenty years has been amazing: it now contains about 22,000 houses, whose inhabitants are estimated at 156,000.

Dublin, with respect to its streets, bears a near resemblance to London. Some of the old streets were formerly narrow: but this defect is now in a great measure remedied by an act of parliament, passed in 1774, for opening the public avenues, taking down sign posts, palisades, pent houses, &c, new paving the streets, and flagging the foot passages: and, in 1785, another act passed for the better paving, cleansing, and lighting the city; in consequence of which an additional number of globes with double burners were put up at the distance of 36 feet from each other. These necessary improvements contribute exceedingly to the beauty and convenience of the metropolis: the new streets are wide and commodious, the houses lofty, uniform, and elegant; nor are several of the old streets totally deficient in these respects; Sackville street, or the Mall, which, though built upwards of 40 years ago, has been included in the number of our new streets by all the late geographers (a self-evident proof that these writers had not even seen the city), is a noble avenue, with a gravel walk in the centre, enclosed by a wall of about three feet high; this walk is 36 feet and a half broad, and the distance between it and the palisades fronting the houses, on either side, is 42 feet and a half: when the new customhouse is completed, this street will be then a most desirable situation for wholesale merchants, not only on account of its proximity to that building, but its great depth in the rear. Some years ago, it was esteemed one of the finest public avenues in Europe: many of the new streets, however, in this city are now much superior to it in the magnificence and uniformity of the houses. Among

Dublin.

these, on the north side of the river, in the same quarter with Sackville street, are Gardiner's row, North Great George's street, Cranby row, Cavendish row, and Palace row: the last three form a superb square, having the garden of the lying-in hospital in the centre: the old wall that encompassed the garden has been lately taken down; there is now a full view of this delightful spot surrounded with iron palisades, and upwards of 100 globes with double burners disposed at equal distances, which added to the globes from the surrounding houses, have a most brilliant effect. This square, which for its size, is not perhaps to be equalled, has lately received the name of Rutland square, in compliment to his grace the present duke of Rutland, who contributed munificently towards the improvements in the enclosure of the new garden, and the erecting an elegant edifice for a ball and supper rooms, now nearly finished, situated to the east of the hospital.

Among the new streets and buildings on the south side of the river, those wherein persons of distinction reside, lie chiefly to the eastward of the college and Stephen's green; which last, though it does not rank with the new buildings, possesses much grandeur and elegance, being one of the largest squares in Europe: it is an English mile in circumference, surrounded by a gravel walk planted on each side with trees; within this walk is a smooth level meadow, having in the centre an equestrian statue of the late king: there are several fine edifices, though almost all differing in the style of their architecture; this variety, however, is esteemed by many rather a beauty than a defect: but, besides the other streets and buildings in this quarter, there is a new square which will be nearly as extensive as Stephen's green, called *Merion square*; it was laid out some years ago by the late Lord Fitzwilliam; the buildings are now considerably advanced, and great encouragement has been given by the present noble proprietor: the houses on the north side, which is quite finished, are uniform and lofty; most of them being carried up with hewn stone to the first story, gives the whole an air of strength, beauty, and magnificence. At the south-west angle of Stephen's green, a new street has been also opened, called *Harcourt street*, in which are several elegant structures that merit notice, particularly the town residence of the right honourable lord Earlsford.

The principal entrance to the walks of Stephen's green is on the west side opposite the end of York-street (which may properly be classed among the new streets), as all the old houses have been pulled down and modern buildings erected in their room. Those parts of the city inhabited by merchants and traders begin to wear a new face; and amongst this number the new buildings of Dame street on the south side, exhibit an extensive, uniform, and beautiful range of houses all of an equal height; the shop doors and windows are formed by arches, exactly similar in their construction and ornaments, which are simply elegant; when the other side of this street shall be rebuilt, it may be justly pronounced one of the first trading streets in Europe; and Parliament street, which was built some years ago, is now nearly equal to any trading street in London.

The river Liffey, being banked in through the whole

Dublin: whole length of the town, exhibits spacious and beautiful quays, where vessels below the bridges load and unload before the merchants doors and warehouses: it is navigable as far as a bridge near the west end of the new custom-house. This bridge which is a very elegant structure, was built since the year 1790. Essex bridge was first built in 1681, and took its name from the unfortunate earl of Essex, then viceroy of Ireland. It was taken down in 1753, and rebuilt in an elegant form, after the model of Westminster bridge, but much better proportioned, and on a more secure foundation. It has five arches, the buttresses between which support semicircular niches that project from the parapet; there are balustrades between these niches, and continued to the ends of the bridge, which is commodiously flagged for foot passengers; the whole constructed with hewn stone in a very fine taste. There are four bridges besides the two already mentioned; three of which have nothing to recommend them, further than the antiquity of the Old Bridge, which was erected in this city at a very early period, when it had the name of *Dublin Bridge*; it was rebuilt in 1428, since which time it received its present title. Bloody bridge, built in 1671, was originally constructed with wood, and derives its present harsh appellation from an attempt to break it down, wherein four persons were killed. Ormond bridge was built in 1684, during the Ormond administration. Arran bridge, now called *Queen's bridge*, was erected in the same year; but, being destroyed by the floods in 1763, was rebuilt of hewn stone, and finished in 1768. It consists of three arches, with flagged foot passages, stone balustrades and ornamental decorations, in a handsome light style, which has been much admired.

This city has 2 cathedrals, 18 parish churches, 2 chapels of ease, 15 Roman Catholic chapels, 6 meeting houses for Presbyterians, 1 for Anabaptists, 4 for Methodists, 2 for Quakers, a church for French Calvinists, a Danish and a Dutch church, and a Jewish synagogue.

Christ church, or the Holy Trinity, built in 1038 by Donat bishop of Dublin, to whom Sitricus the son of Amlave king of the Ostmen of Dublin granted the site for that purpose, stands on the summit of the rising ground at the head of Winetavern street. It is a venerable Gothic pile; and its present appearance evinces its antiquity. St Patrick's cathedral, first built by Archbishop Comyn in 1190, and decorated by Archbishop Minot in 1370 with a steeple, on which a lofty spire was erected in 1750, is also a fine Gothic structure; it stands on the east side of Patrick's street; the monuments here are more numerous than in Christ church; and the steeple is the highest in the city.

St Werburgh's church was originally built in a very early age. In 1301, when a great part of the city was consumed by an accidental fire, this church suffered in the conflagration: it was burnt a second time in 1754, and repaired in its present beautiful form in 1759. The front and steeple are admired for their elegance, lightness, and symmetry: the spire is a fine octagon supported by eight pillars; and a gilt ball terminates the whole, being 160 feet from the ground. Catherine's church, first built in 1105, and re-edified in its present form in 1769, is situated on the south

side of Thomas's street. St Thomas's church is the latest foundation of the kind in this city, having been begun in the year 1738, and finished and consecrated in 1762. It is situated on the west side of Marlborough street, opposite Gloucester street, to which it forms an elegant termination. The other churches in this city are; on the north side of the river, Mary's, Michan's, and Paul's; on the south side, James's, Luke's, Kevin's, Peter's, Bride's, Nicholas within, Audeon's, Michael's, Mark's, Anne's, John's, and Andrew's: this last is called also the *Round church*, from its form being exactly circular: most, if not all the others were built in an early age: many, however, have been since re-edified; and assumed a more modern form; some of these are not totally devoid of elegance, particularly Anne's. St John's in Fishamble street was rebuilt in 1773, and has now a handsome front of hewn stone decorated with columns supporting a pediment. Besides these churches, Dublin is adorned with several other public buildings; the most remarkable of which are the following: The castle, the residence of the chief governor, built in 1213 by Henry de Londres, was formerly moated and flanked with towers; but the ditch has been long since filled up, and the old buildings razed, the chapel and wardrobe tower excepted, which still remain: Birmingham tower was rebuilt in 1777, and is now called *Harcourt tower*. The castle at present consists of two courts, the principal of which is an oblong square formed by four ranges of building: within a few years, in the middle of the south range, a handsome edifice called *Bedford tower* has been erected; the front is decorated with a small arcade of three arches, over which is a colonnade supporting a pediment, from whence rises an octagon steeple crowned with a small cupola and gilt ball in a light pleasing style. This tower, which fronts the entrance to the viceroy's apartments, is connected with the buildings on each side by two fine gates; over that on the right hand is a statue of Fortitude; and over the left gate, which is the grand portal to the upper court, is the statue of Justice. In the lower court are the treasury and other offices, with military stores, an arsenal and armory for 40,000 men, and a barrack in which a captain's detachment of infantry are stationed. Between this barrack and the arsenal is the castle garden; opposite to which, at the rear of the lord lieutenant's apartments, is a range of building called the *Garden front*, erected about the year 1740, finished in mountain stone, ornamented by semicolumns of the Ionic order, and the windows embellished with cornices and architraves, in a fine taste. The hall room is now titled *St Patrick's Hall*. The viceroy's body guard consists of a captain, two subalterns, and sixty private men, with a subaltern's guard of horse. The parliament house, a most superb structure, is situated on the north side of College green; it was begun in 1729, finished in 10 years, and cost 40,000l. It is built with Portland stone, and the front formed by a grand portico of Ionic columns in the most finished style of architectural elegance: the internal parts correspond with its outward magnificence; and the manner in which the inside is lighted is universally admired. The house of commons is an octagon, covered with a dome supported by columns of the Ionic order, that rise from an amphitheatrical gallery balustraded with iron scroll-work; this room is admirably well adapted

Dublin.

Dublin. to its purpose. The house of lords is an oblong room, spacious and lofty, and ornamented in a superb manner; it is also judiciously adapted for the reception of the august assembly which meet there: among other decorations are two very fine pieces of tapestry, representing the battle of the Boyne and siege of Derry. By order of both houses of parliament, a grand new front has been erected on the east side of this magnificent pile; and preparations are making (1790) to front the north and west sides in a similar manner, from a design of Mr Gandon's: thus insulated, the whole will form a suite of senatorial apartments matchless in elegance and convenience (A).

The college founded by Queen Elizabeth in 1591 is situated at the east end of College green. It is a most beautiful structure, consisting of two spacious squares, the first of which contains the refectory, the old hall and chapel, and the new theatre for lectures and examinations; the front of this last building is finely decorated with Corinthian columns supporting a pediment; and over the front of the old hall, on the east side of this square, a handsome steeple rises crowned with a cupola. In the other square, which consists partly of brick buildings for the students, there is a superb library, extending through its whole length on the south side: behind this square there is a fine park. The west side of the first square, which is built with Portland stone, forms the grand front, upwards of 300 feet in length, ornamented with Corinthian pillars and other decorations in a very fine taste. At a small distance to the south side of this front is an elegant edifice in which the provost resides. The printing office is a neat handsome structure on the north side of the park; and opposite to it is the anatomy house, in which are to be seen the celebrated wax models of the human figure, executed at Paris by M. Douane, purchased by the right honourable the earl of Shelburne, and presented to this university. The college of Dublin is an university in itself, consisting of a provost, vice provost, 7 senior and 15 junior fellows, and 17 scholars of the house; the number of students is generally about 400: it has also professors in divinity, common and civil law, physic, Greek, modern languages, mathematics, oriental tongues, history and oratory, modern history, natural philosophy, anatomy and surgery, chemistry and botany. His royal highness the duke of Gloucester is chancellor, and his grace the lord primate of Ireland vice chancellor; the visitors are the chancellor (or, in his absence, the vice chancellor) and the archbishop of Dublin.

The Royal Exchange, situated on Cork hill, was begun in 1769, and opened for business in 1779; the expence, amounting to 40,000*l.* being defrayed by lottery schemes, conducted by the merchants of Dublin with an integrity that did them honour. The building is nearly a square, having three fronts of Portland stone in the Corinthian order, and crowned in the midst with a fine dome, which is supported on the inside by 12 Composite fluted pillars that form a circular

walk in the centre of the ambulatory: above these pillars are 12 circular windows, and the ceiling of the dome, which is ornamented with stucco, in the mosaic style, has also a large window in the middle that illuminates most of the building. Opposite the north entrance, in the circular walk, is a statue of his present majesty George III. in a Roman military habit; it is executed in bronze by Van Nost, and elevated on a white marble pedestal; in a niche on the staircase leading to the coffee room is a white marble statue of the late Dr Charles Lucas, executed by Smith. The north front, which commands a fine view of Parliament street and Essex bridge, is embellished by a range of six columns and their correspondent pilasters, supporting a grand pediment with a balustrade on each side: a flight of stone steps leads from the street to the entrance, which is by three fine iron-railed gates: the west front varies but little from the north, except in the want of a pediment, and having only three steps ascending to the entrance, the ground on that side being nearly on a level; this front is opposite the east end of Castle street, near the principal entrance to the castle.

The hospital for lying-in women, founded by Dr Bartholomew Mosse, and opened in 1757, stands on the north side of Great-Britain street. The building is extremely light and elegant; a beautiful steeple rises in the centre, and the wings are formed by semicircular colonnades on each side. Adjoining the east colonnade is the Rotunda, where balls and assemblies are held, and concerts performed, for the benefit of the charity: close to it are now erecting the grand suit of apartments before mentioned. The garden at the rear of the hospital is laid out in a good taste.

The Blue-coat hospital was founded on the west side of Queen street by Charles II. in 1670, for educating the children of reduced freemen of the city: but the original building being greatly decayed, was taken down, and the new Blue-coat hospital, situated in Oxmantown green, was begun in 1773. The front is enriched by four Ionic columns, supporting a pediment in the centre, over which the steeple rises, embellished with Corinthian and Composite columns in an admired taste. Connected with the front by circular walls ornamented with balustrades and niches, are the school on one side and the church on the other: these form two well proportioned wings; they are of a similar construction; and each is crowned with a small steeple or turret, corresponding with the rest in uniform harmony and beauty.

The Barracks, the foundation of which was laid in 1704, are esteemed the largest and most commodious in Europe. They consist of four squares, situated at the west end of the town, on the north side of the river. The royal square in the centre, with the horse barrack and the little square on each side, form a spacious and extensive front to the south: the palatine, now called the new square, is opposite to Oxmantown green; it has been lately rebuilt with hewn stone in a very elegant manner.

The

(A) Since the union of Ireland with Great Britain, this building being no longer necessary as a place of meeting for the Irish legislative body, now incorporated in the imperial parliament, is to be converted into apartments for the national bank.

Dublin.

The royal hospital at Kilmainham for the support of invalids of the Irish army was founded by King Charles II. on a plan similar to that of Chelsea in England. The building was completed in 1683, and cost upwards of 23,500*l.* It is situated at the west end of the town on a rising ground near the south side of the river, from whence there is an easy ascent to it through several rows of tall trees. This edifice is of a quadrangular form, enclosing a spacious area handsomely laid out in grass plots and gravelled walks: an arcade is carried along the lower story in each square to the entrance of the hall and chapel, which are both curiously decorated; in the former are several whole-length portraits of royal personages and other distinguished characters.

Dr Stevens's Hospital, the foundation of which was laid in 1720, is a neat quadrangular building, pleasantly situated on the banks of the river near the west end of James's street, from whence a gravelled walk leads by a gentle descent to the entrance of the hospital, and is continued from thence to the water's edge.

The Linen Hall, at the north end of Linen-Hall street, which was opened at the public expence in 1728, for the reception of linen cloths brought to the Dublin market, is a handsome building, lately enlarged with treble its number of former rooms, which furnish a new proof of commercial prosperity.

The New Prison in Green street, the first stone of which was laid in 1773, is a large quadrangular structure, designed and executed under the direction of the late Mr Cooley. The east front consists of a centre break of mountain stone rusticated and crowned by a pediment, with a plain facade of black limestone on each side; and at the external angles of the building are four round towers.

There are many other public edifices in this city and its environs which merit particular notice. The Hospital for Lunatics in West Bow lane, founded by Dean Swift, and opened in 1757; the Hibernian School in the Phoenix Park, and the Marine School on Sir John Rogerson's Quay, the first for educating the poor children of soldiers, and the other for bringing up to the sea service the sons of deceased or disabled seamen; the Hospital for Incurables in South Townsend street; Mercer's Hospital in Stephen street; the Meath Hospital on the Coombe; and Simpson's Hospital in Great-Britain street, the last of which was established for the reception of blind and gouty men; are all handsome edifices constructed of hewn stone in the modern style.

To these public buildings may be added St Nicholas's Hospital in Francis street; the Infirmary for sick and wounded soldiers of the army, and the Foundling Hospital in James's street; the Magdalen Asylum in Leeson street; and the House of Industry in Channel row; the halls for corporations (particularly the Weavers Hall on the Coombe, over the entrance of which is a statue of his late majesty George II.); the Tholsel, the old Four Courts; the old Customhouse; and several others. The Charitable Infirmary, which was first opened in 1728 and rebuilt in 1741, stood on the Inn's Quay, but has lately been pulled down, together with most of the houses on that quay, where the new courts of justice are to be erected; and the benefits of this humane institution are now dispensed to the

Dublin.

public at a house taken for that purpose in Jervis street. The new courts of justice, on the north side of the river, form a principal ornament to the metropolis, and are from a design of Mr Gandon's, as well as the new customhouse on the north wall. The front of the latter extends 375 feet, enriched with arcades and columns of the Doric order, crowned with an entablature: the centre has a portico finished with a pediment, in which is a bas relief of emblematical figures alluding to commerce: over the pediment is an attic story; and a magnificent dome finishes the centre, whereon is a pedestal supporting a statue of Commerce: the key stones over the entrances and in the centre of the pavilions are decorated with emblematical heads representing the produce of the principal rivers of Ireland: the south or front to the river, with the arms of Ireland over each pavilion, is of Portland stone: the whole, being formed of large and striking parts, adds much to the picturesque scene of the river, and will remain a lasting monument of reputation to the several artists employed in this superb building.

The playhouses, considered as public buildings, have nothing to recommend them to notice. One only, viz. the old house, now the theatre-royal, in Smock-alley, is kept open by Mr Daly; who, in consequence of a bill passed in the Irish parliament for the regulation of the stage, enjoys the exclusive privilege of managing and directing the theatrical exhibitions in this metropolis. The playhouse in Crow street, which formerly possessed the distinction of theatre-royal, has been shut up these several years past.

But a minute description of every public edifice would occupy more room than this publication admits, not to mention the several private houses, justly admired for their elegance. Among these are,

Leinster House, the town residence of his grace the duke of Leinster. The entrance to this princely mansion is from Kildare street, through a grand gateway of rustic stone work, into a spacious court which forms a segment of a circle before the principal front. The inside of this magnificent structure is equal to its exterior appearance; the hall lofty and noble; and the apartments decorated and furnished in a splendid taste, and enriched with several very valuable paintings. The garden front, plain yet bold, possesses a pleasing simplicity; the garden is spacious and elegant, with a beautiful lawn in the centre. The whole of this building is inferior to few private edifices in the British dominions.

The earl of Charlemont's house is finely situated in the middle of Palace row, on an eminence exactly fronting the centre of the garden at the rear of the lying-in hospital. The front is built with hewn stone brought from Arklow, superior to that of Portland. The inside of this house is superb and convenient: the hall ceiling is supported by columns; some of the apartments are decorated with a select but choice collection of paintings of the best masters; among which are one of Rembrandt's finest pictures, representing Judas repenting and casting the silver pieces on the ground; a portrait of Cæsar Borgia, by Titian; and the Lady's Last Stake by Hogarth, &c. &c. The library is esteemed one of the finest apartments in Dublin, and contains a very valuable collection of the best authors. At one end of it is an antichamber, with a fine statue

Dublin. in white marble of the Venus de Medicis, by Wilton; and at the other end are two small rooms, one a cabinet of pictures and antiquities, the other of medals: it is situated at the rear of the house, and connected with it by a corridore, in which are some handsome statues and Egyptian curiosities.

Dublin, which is the seat of government and of the chief courts of justice, has received many charters and ample privileges from the kings of England since the reign of Henry II. who introduced the English laws into this kingdom. Richard II. erected it into a marquisate in favour of Robert de Vere earl of Oxford, whom he also created duke of Ireland. It is an archiepiscopal see, and returns with the university and the county six members to parliament. The civil government of Dublin is executed by a lord mayor, recorder, two sheriffs, twenty-four aldermen, and a common council formed of representatives from the twenty-five corporations. Every third year the lord mayor, in conformity with an old charter, perambulates the bounds of the city and its liberties; and formerly the freemen of the several corporations, armed and mounted on horseback, were accustomed to attend the chief magistrate on this occasion, which was titled riding the franchises: but as this custom was productive of idleness, intoxication, and riots, among the lower orders of the people, it has been of late years very properly laid aside. Besides the silk, woollen, and worsted manufactures carried on in that quarter of the suburbs called the Earl of Meath's Liberty, and which have been considerably improved within these few years, other branches of useful manufacture are establishing in different parts of the metropolis; and though the trade of Dublin has heretofore consisted chiefly in the importation of foreign commodities, yet, now that the restrictions on their woollens and most of their other goods are removed, it is hoped the daily enlargement of their export trade will cause a proportionable increase of national opulence.

Dublin would have had a commodious station for shipping, were it not that the harbour is choked up with two banks of sand, called the *North and South Bulls*, which prevent vessels of large burden from coming over the bar. This, however, is in some measure remedied by a prodigious work of stone, and piles of wood extending some miles into the bay on the south side, at the end of which there is a lighthouse, beautifully constructed, after a design of the late Mr Smith's. But the port of Dublin is capable of much greater improvement; particularly by turning the course of the river Dodder, building a mole from the north wall to Ringsend, and clearing the harbour so as to form a grand basin on the south side for the reception of vessels of all burthens. This work is to be immediately carried into execution, and will no doubt meet every possible encouragement, from that spirit for promoting the national welfare which now prevails throughout this kingdom, and is remarkably conspicuous in the capital, where, among others, are the following public institutions.

The board of trustees for promoting the linen and hempen manufactures, established by act of parliament. The Dublin Society, incorporated by charter in the year 1749, for improving husbandry and other useful arts. The Royal College of Physicians, established in

the year 1679 for promoting medical knowledge. The Royal College of Surgeons, instituted in the year 1785. The Royal Irish Academy, for the advancement of science, polite literature, and antiquities, incorporated by letters patent the 28th of January 1786: His majesty is patron, and the chief governor for the time being is visitor. The Hibernian Society, for maintaining, educating, and apprenticing, the orphans and children of soldiers in Ireland. The Hibernian Marine Society, for maintaining, educating, and apprenticing, the orphans and children of decayed seamen in his majesty's navy and the merchants service; also incorporated by royal charter.

But among these public institutions, that of the Bank of Ireland must not be omitted: it was established by act of parliament in 1783; and by facilitating the circulation of specie, gives life and vigour to manufactures and commerce. It is conducted under the management of a governor, deputy-governor, and fifteen directors, chosen annually from among the subscribers; with this restriction, that five new directors at least must be chosen every year: This bank is kept in Mary's abbey. There are four other banks in the city under the following firms; viz. Right Honourable David La Touche and Co. and Sir William Glendowe Newcomen, Bart. and Co. both in Castle street; John Dawson Coats, Esq; Thomas street: and John Finlay and Co. Upper Ormond quay. The houses in which the first three are kept are structures worthy of notice, particularly that of Sir William Glendowe Newcomen's, which has been rebuilt with hewn stone, in a good taste, after a design of the late Mr Ivory's.

To these public institutions may be added the General Post Office of Ireland, established by act of parliament in 1784, previous to which time the post office of this kingdom was only considered a branch of the English one. The building erected for this purpose is on the south side of College green: it is a fine lofty extensive structure, and the offices of clerks, &c. are extremely well adapted. There are two postmasters-general, a secretary, treasurer, accountant-general, resident surveyor, and comptroller. There is also a penny-post under the direction of the same officers, established for the conveyance of letters to all parts throughout the city and its environs.

Dublin is remarkably well supplied with flesh, fowl, and fish, the latter in much greater perfection than any other capital in Europe. It is supplied with coals chiefly from Cumberland and Scotland; and water is conveyed to the city on the north side from the river Liffey, by machines curiously constructed for the purpose, at an outlet called *Island bridge*: the south side is supplied with that necessary article from a fine reservoir or basin, surrounded with a wall and a handsome grass walk enclosed on each side by a thick-set hedge and trees planted at equal distances. From one end of it there is a view of the canal for the convenience of inland water carriage, now completed as far as Monastereven, between which and the canal harbour in James's street, passage boats ply daily; they are well appointed and accommodated with all necessary refreshments. At a small distance from the basin there is a bridge of a single arch thrown over the canal, the elegance and architecture of which are much admired: the sides of the canal for some miles into the

Dublin
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Ducal.

the country are planted with elm trees, which renders its banks in fair weather a delightful place of exercise for the citizens; who also resort for recreation to his majesty's Phoenix park, a fine extensive enclosure at the west end of the town, and on the side of the river opposite to the canal, diversified with woodland, campaign, and rising ground, and well stocked with deer. It is seven miles in circuit; and besides the Hibernian school, is adorned with the viceroy's beautiful villa and some handsome lodges belonging to the rangers: in this park are also a magazine for powder and a battery that commands the city. In 1747, a fluted pillar 30 feet high, with a phoenix on the top, was erected in the centre of a ring in this park by the celebrated earl of Chesterfield when lord lieutenant of Ireland.

The circular road which surrounds the city, beginning on one side of the river, at the east end of the town, and terminating on the opposite shore, is carried through the park. This road forms a very agreeable ride, and is much frequented. It is the boundary of the jurisdiction of the new police, instituted for the better preservation of the peace and good order of the city and the personal security of its inhabitants. This institution, lately established by act of parliament, is under the direction of a chief commissioner, three assistant commissioners, and four divisional justices, who are all aldermen of the city; which is therefore properly termed *the district of the metropolis*, and divided into four wards. The police guard consists of 40 horsemen and 400 foot, well armed, and in regular uniform: they are taught military discipline, and stationed at night time in the several watchhouses; from whence parties are constantly patrolling the streets, and centinels are placed at different stands. This institution is found by experience to be a much more effectual prevention of robberies, riots, and nocturnal outrages, than the parish watches; and to this security which the well-disposed working manufacturers enjoy, may in a great measure be attributed that increasing spirit of industry and peaceable behaviour now so prevalent among this useful class of the community, which cannot fail to be productive of the most salutary consequences to the future welfare of the metropolis and the kingdom in general.

DUBOS, JOHN BAPTIST, a learned and ingenious French author, born at Beauvais in 1670. He finished his studies at Paris, and at length was intrusted with the management of several important affairs in Italy, England, and Holland. At his return to Paris, he had a prebendary given him; afterwards he had a pension of two thousand livres, and the abbey of Notre Dame at Reffons, near Beauvais. He died at Paris, when perpetual secretary of the French academy, on the 23d of March 1742. His principal works are, 1. *Critical Reflections on Poetry and Painting*, in three volumes duodecimo. 2. *A Critical History of the French Monarchy in Gaul*, two volumes 4to.

DUBRIS in *Ancient Geography*, a town of Britain; now *Dover*, from *Dovoria* of the lower age. A port town in Kent, opposite to Calais.

DUCAL, in general, something belonging to a duke. See DUKE.

The letters patent granted by the senate of Venice are called *ducal*: so also are the letters wrote, in the name of the senate, to foreign princes. The denomi-

VOL. VII. Part I.

nation of ducal is derived hence; that, at the beginning of such patents, the name of the duke or doge is wrote in capitals, thus, *N— Dei Gratia Dux Venetiorum*, &c. The date of ducals is usually in Latin, but the body is in Italian. A courier was despatched with a ducal to the emperor, returning him thanks for renewing the treaty of alliance in 1716, against the Turks, with the republic of Venice.

DUCAS, a learned Greek, who wrote a history of what passed under the last emperors of Constantinople, till the ruin of that city. This work, which is esteemed, was printed at the Louvre in 1649, with the Latin translation and notes of Boillaud.

DUCAT, a foreign coin, either of gold or silver, struck in the dominions of a duke; being about the same value with a Spanish piece of eight, or a French crown; or four shillings and sixpence sterling when of silver, and twice as much when of gold. See COIN.

The origin of ducats is referred to one Longinus, governor of Italy; who revolting against the emperor Justin the Younger, made himself duke of Ravenna, and called himself *Exarcha*, i. e. *without lord or ruler*; and, to show his independence, struck pieces of money of very pure gold in his own name, and with his own stamp, which were called *ducati*, ducats; as Procopius relates the story.

After him, the first who struck ducats were the Venetians, who called them *Zecchini* or *sequins*, from *Zecca*, the place where they first were struck. This was about the year 1280 in the time of John Danduli; but we have pretty good evidence, that Roger king of Sicily had coined ducats as early as 1240. And Du Cange scruples not to affirm, that the first ducats were struck in the duchy of Apulia in Calabria. The chief gold ducats now current are, the single and double ducats of Venice, Florence, Genoa, Germany, Hungary, Poland, Sweden, Denmark, Flanders, Holland, and Zurich. The heaviest of them weighs 5 pennyweights 17 grains, and the lightest 5 pennyweights 10 grains; which is to be understood of the double ducats, and of the single in proportion.

The Spaniards have no ducats of gold; but, in lieu thereof, they make use of the silver one; which, with them, is no real species, but only a money of account like our pound. It is equivalent to 11 rials. See RIAL. The silver ducats of Florence serve there for crowns.

DUCATOON, a silver coin, struck chiefly in Italy; particularly at Milan, Venice, Florence, Genoa, Lucca, Mantua, and Parma; though there are also Dutch and Flemish ducatoons. They are all nearly on the same footing; and being a little both finer and heavier than the piece of eight, are valued at twopence or threepence more; viz. at about four shillings and eightpence sterling.

There is also a gold ducatoon, struck and current chiefly in Holland: it is equivalent to twenty florins, on the footing of one shilling and elevenpence halfpenny the florin.

DUCENARIUS, in antiquity, an officer in the Roman army, who had the command of 2000 men.

The emperors had also *ducenarii* among their procurators or intendants, called *procuratores ducenarii*. Some

Ducas
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Ducenarius.

Ducen-
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say, that these were such whose salary was two hundred sesterces; as in the games of the circus, horses hired for two hundred sesterces were called *ducenarii*. Others hold, that *ducenarii* were those who levied the two hundredth penny, the officers appointed to inspect the raising of that tribute. In the inscriptions at Palmyra, the word *ducenarius*, in Greek *δουκηνάριος*, occurs very often.

DUCENTESIMA, in antiquity, a tax of the two hundredth penny, exacted by the Romans.

DUCHAL, JAMES, D. D. a late pious and learned dissenting minister, was born in Ireland, and finished his studies at the university of Glasgow; which afterwards, from a regard to his merit, conferred on him the degree of doctor of divinity. He resided 10 or 11 years at Cambridge, as the pastor of a small congregation there; where he enjoyed his beloved retirement, the advantage of books and of learned conversation, which he improved with the greatest diligence. On Mr Abernethy's removal from Antrim, he succeeded him there; and on that gentleman's death, he succeeded him as minister of a dissenting meeting-house in Wood-street, Dublin. In this situation he continued till his death, which happened on the 4th of May 1761, when he had completed his 64th year. He published a volume of excellent discourses on the presumptive arguments in favour of the Christian religion, and many occasional tracts; and after his death was published a number of his sermons, in three volumes 8vo.

DUCHY, in *Geography*, an appellation given to the dominions of a duke.

Duchy Court, a court where all matters belonging to the duchy or county palatine of Lancaster are decided by decree of the chancellor of that court.

The origin of this court was in Henry IV's time, who obtained the crown by the deposition of Richard II. and having the duchy of Lancaster by descent, in right of his mother, became seized thereof as king, not as duke: So that all the liberties, franchises, and jurisdictions of the said county passed from the king by his great seal, and not by livery or attornment, as the earldom of March, and other possessions, which descended to him by other ancestors than the king's did. Henry IV. by authority of parliament, severed the possessions, liberties, &c. of the said duchy from the crown; but Edward IV. restored them to their former nature.

The officers belonging to this court are, a chancellor, attorney general, receiver general, clerk of the court, and messenger; beside the assistants, as an attorney in the exchequer, another in chancery, and four counsellors.

DUCK. See ANAS, ORNITHOLOGY *Index*.

This fowl is furnished with a peculiar structure of vessels about the heart, which enables it to live a considerable time under water, as is necessary for it in diving. This made Mr Boyle think it a more proper subject for experiments with the air-pump, than any other bird. A full-grown duck, being put into the receiver of an air-pump, of which she filled one-third part, and the air exhausted, the creature seemed to bear it better for the first moments than a hen or other such fowl; but, after about a minute, she showed great signs of uneasiness, and in less than two minutes her head fell down, and she appeared dying, till revived by the

admission of the air. Thus, whatever facility of diving this and other water fowl may have, it does not appear that they can subsist, without air for respiration, any longer than other animals. A young callow duck was afterwards tried in the same manner, and with the same success, being reduced very near death in less than two minutes. But it is observable, that both birds swelled very much in pumping out the air, so that they appeared greatly larger to the spectators, especially about the crop: it not being intended that any water fowl should live in an exceeding rarefied air, but only be able to continue occasionally some time under water. Nature, though she has provided them with the means of this, hath done nothing for them in regard to the other.

The strongest instance of these creatures being calculated to live almost in any situation, we have in the accounts of the blind ducks in the Zirchnitzer lake in Carniola. It is supposed that this lake communicates with another lake under ground in the mountain Savornic, and fills or empties itself according to the fullness or emptiness of that lake; the water of the upper lake running off, and that in vast quantities, by holes in the bottom. The ducks which are here always in great numbers, are often carried down along with the water, and forced into the subterraneous lake to which it retires. In this unnatural habitation many of these creatures undoubtedly perish, but some remain alive. These become blind, and lose all their feathers; and in the next filling of the lake, both they and vast numbers of fish are thrown up with the water. At this time they are fat, but make a strange appearance in their naked state, and are easily caught, by reason of their want of sight. In about a fortnight they recover their sight and feathers; and are then of the size of a common wild duck, but of a black colour, with a white spot on their forehead. When opened, on being taken at their first coming up in their blind state, their stomachs are found full of small fishes, and somewhat resembling weeds. From this it seems that they cannot be absolutely blind: but that the degree of light to which they have been accustomed in their subterraneous habitation, is sufficient to enable them to procure food for themselves; and their blindness, on coming again to open day light, is no other than that of a man who has been long in the dark, on having in an instant a large blaze of candles set under his eyes.

DUCK *Stephen*, originally a thrasher in a barn, was born about the beginning of the 18th century. By his poetical talents, he first attracted the notice of some gentlemen at Oxford; and being recommended to Queen Caroline, he, under her patronage, took orders, and was preferred to the living of Bysfleet in Surry. His abilities were, however, much more conspicuous in his primitive station than in his advancement; though, it is said, he was not disliked as a preacher. Falling at length into a low-spirited melancholy way, probably owing to his change of life and cessation from his usual labour, he in a fit of lunacy flung himself into the Thames, in 1756.

DUCKING, plunging in water, a diversion anciently practised among the Goths by way of exercise; but among the Celtæ, Franks, and ancient Germans, it was a sort of punishment for persons of scandalous lives.—At Marseilles and Bourbon their men and women

Duck,
Ducking.

Ducking
||
Ductility.

men of scandalous life are condemned to the cale, as they call it; that is, to be shut up naked to the shift in an iron cage fastened to the yard of a shallop, and ducked several times in the river. The same has been done at Thoulouse to blasphemers.

DUCKING, a sort of marine punishment, inflicted by the French, on those who have been convicted of desertion, blasphemy, or exciting sedition. It is performed as follows: The criminal is placed astride of a short thick batten, fastened at the end of a rope, which passes through a block hanging at one of the yard-arms. Thus fixed, he is hoisted suddenly up to the yard, and the rope being slackened at once, he is plunged into the sea. This chastisement is repeated several times conformable to the purport of the sentence pronounced against the culprit, who has at that time several cannon shot fastened to his feet during the punishment; which is rendered public by the firing of a gun, to advertise the other ships of the fleet thereof, that their crews may become spectators.

DUCKING is also a penalty which veteran sailors pretend to inflict on those who, for the first time, pass the tropic of Cancer, the equator, or the straits of Gibraltar, in consequence of their refusal or incapacity to pay the usual fine levied on this occasion.

DUCKING-Stool. See CASTIGATORY.

DUCKUP, at sea, is a term used by the steersman, when the main-sail, fore-sail, or sprit-sail, hinders his seeing to steer by a land mark: upon which he calls out, *Duckup the clew-lines of these sails*; that is, haul the sails out of the way. Also when a shot is made by a chase piece, if the clew of the sprit-sail hinders the sight, they call out, *Duckup*, &c.

DUCT, in general, denotes any tube or canal. It is a term much used by anatomists.

DUCTILITY, in *Physics*, a property possessed by certain solid bodies, which consists in their yielding to percussion or pressure, and in receiving different forms without breaking.

Some bodies are ductile both when they are hot and when they are cold, and in all circumstances. Such are metals, particularly gold and silver. Other bodies are ductile only when heated to a sufficient degree; such as wax and other substances of that kind, and glass. Other bodies, particularly some kinds of iron, called by the workmen *red short*, brass, and some other metallic mixtures, are ductile only when cold, and brittle when hot. The degrees of heat requisite to produce ductility in bodies of the first kind, vary according to their different natures. In general, the heat of the body must be such as is sufficient to reduce it to a middle state betwixt solidity and perfect fusion. As wax, for instance, is fusible with a very small heat, it may be rendered ductile by a still smaller one; and glass, which requires a most violent heat for its perfect fusion, cannot acquire its greatest ductility until it is made perfectly red hot, and almost ready to fuse. Lastly, Some bodies are made ductile by the absorption of a fluid. Such are certain earths, particularly clay. When these earths have absorbed a sufficient quantity of water to bring them into a middle state betwixt solidity and fluidity, that is, to the consistence of a considerably firm paste, they have then acquired their greatest ductility. Water has precisely the same effect

upon them in this respect that fire has upon the bodies above mentioned. Dudley.

DUDLEY, EDMUND, an eminent lawyer and able statesman in the reign of Henry VII.; who with Sir Richard Empson, another lawyer of the same complexion, assisted in filling that rapacious monarch's coffers by arbitrary prosecutions of the people on old penal statutes. They were beheaded on the accession of Henry VIII. to pacify the clamours of the people for justice.

DUDLEY, *John*, duke of Northumberland, son of the above, a statesman; memorable in the English history for his unsuccessful attempt to place the crown on the head of his daughter-in-law, Lady Jane Grey, who fell a victim to his ambition; was born in 1502, and beheaded in 1553. See (*History of*) ENGLAND. Ambrose his eldest son was a brave general and able statesman under Queen Elizabeth; and received the appellation of *the good earl of Warwick*. Henry, the duke's second son, was killed at the siege of St Quentin. Robert, the third son, a man of bad character, was created earl of Leicester; and was one of Queen Elizabeth's favourites. His fourth son was the unfortunate Lord Guildford Dudley, whose only crime was his being the husband of Lady Jane Grey, for which he was beheaded in 1554.

DUDLEY, *Sir Robert*, as he was called in England, and, as he was styled abroad, *earl of Warwick and duke of Northumberland*, was the son of Robert above mentioned, by the lady Douglas Sheffield; and was born at Sheen in Surry in 1573, where he was carefully concealed, to prevent the queen's knowledge of the earl's engagements with his mother. He studied at Oxford; when his father dying, left him the bulk of his estate. He was at this time one of the finest gentlemen in England; and having a particular turn to navigation, fitted out a small squadron at his own expence, with which he sailed to the river Oroonoke, and took and destroyed nine sail of Spanish ships. In 1595, he attended the earl of Essex, and the lord high admiral of England, in their expedition against the Spaniards; when, for his gallant behaviour at the taking of Cadiz, he received the honour of knighthood. He now endeavoured to prove the legitimacy of his birth, in order to be entitled to his hereditary honours. But being overpowered by the interest of the countess dowager of Leicester, he applied for a license to travel; and being well received at the court of Florence, resolved to continue there, notwithstanding his receiving a letter of recal; on which his whole estate was seized by King James I. and vested in the crown. He discovered at the court of Cosmo II. great duke of Tuscany, those great abilities for which he had been admired in England, and was at length made chamberlain to his serene highness's consort. He there contrived several methods of improving shipping; introduced new manufactures; and by other services obtained so high a reputation, that at the desire of the archduchess, the emperor Ferdinand, in 1620, created him a duke of the holy Roman empire. He afterwards drained a vast tract of morass between Pisa and the sea; and raised Leghorn, which was then a mean, pitiful place, into a large and beautiful town, improving the haven by a mole, which rendered it both safe

Duel. and commodious; and having engaged his highness to declare it a free port, he, by his influence and correspondence, drew many English merchants to settle and set up houses there, which was of very great service to his native country, - as well as to the Spaniards. He was also the patron of learned men, and held a high place himself in the republic of letters. His most celebrated work is his *Del Arcano del Mare*, in two volumes folio.

DUEL, a single combat, at a time and place appointed, in consequence of a challenge. This custom came originally from the northern nations, among whom it was usual to decide all their controversies by arms. Both the accuser and accused gave pledges to the judges on their respective behalf; and the custom prevailed so far amongst the Germans, Danes, and Franks, that none were excused from it but women, sick people, cripples, and such as were under 21 years of age or above 60. Even ecclesiastics, priests, and monks, were obliged to find champions to fight in their stead. The punishment of the vanquished was either death, by hanging or beheading; or mutilation of members, according to the circumstances of the case. Duels were at first admitted not only on criminal occasions, but on some civil ones for the maintenance of rights to estates, and the like: in latter times, however, before they were entirely abolished, they were restrained to these four cases. 1. That the crime should be capital. 2. That it should be certain the crime was perpetrated. 3. The accused must by common fame be supposed guilty. And, 4. The matter not capable of proof by witnesses.

DUEL, at present, is used for single combat on some private quarrel; and must be premeditated, otherwise it is called a *rencounter*. If a person is killed in a duel, both the principals and seconds are guilty, whether the seconds engage or not. (See the article **MURDER**.) It is also a very high offence to challenge a person either by word or letter, or to be the messenger of a challenge. (See *LAW INDEX*.)

The general practice of duelling, in this last sense, took its rise in the year 1527, at the breaking up of a treaty between the emperor Charles V. and Francis I. The former desired Francis's herald to acquaint his sovereign, that he would henceforth consider him not only as a base violator of public faith, but as a stranger to the honour and integrity becoming a gentleman. Francis, too high-spirited to bear such an imputation, had recourse to an uncommon expedient to vindicate his character. He instantly sent back the herald with a cartel of defiance, in which he gave the emperor the lie in form, challenged him to single combat, requiring him to name the time and place of the encounter, and the weapons with which he chose to fight. Charles, as he was not inferior to his rival in spirit or bravery, readily accepted the challenge; but after several messages concerning the arrangement of all the circumstances relative to the combat, accompanied with mutual reproaches bordering on the most indecent scurrility, all thoughts of this duel, more becoming the heroes of romance than the two greatest monarchs of their age, were entirely laid aside.

The example of two personages so illustrious, drew such general attention, and carried with it so much authority, that it had considerable influence in intro-

ducing an important change in manners all over Europe. Duels, as has already been observed, had been long permitted by the laws of all the European nations; and, forming a part of their jurisprudence, were authorized by the magistrate on many occasions, as the most proper method of terminating questions with regard to property, or of deciding in those which regarded crimes. But single combats being considered as solemn appeals to the omniscience and justice of the Supreme Being, they were allowed only in public causes, according to the prescription of law, and carried on in a judicial form †. Men accustomed to † See the naturally led to apply it to personal and private quarrels. *Battel.* Duels, which at first could be appointed by the civil judge alone, were fought without the interposition of his authority, and in cases to which the laws did not extend. The transactions between Charles and Francis strongly countenanced this practice. Upon every affront or injury which seemed to touch his honour, a gentleman thought himself entitled to draw his sword, and to call on his adversary to make reparation. Such an opinion, introduced among men of fierce courage, of high spirit, and of rude manners, where offence was often given, and revenge was always prompt, produced most fatal consequences. Much of the best blood in Christendom was shed; many useful lives were lost; and, at some periods, war itself hath hardly been more destructive than these contests of honour. So powerful, however, is the dominion of fashion, that neither the terror of penal laws, nor reverence for religion, have been able entirely to abolish a practice unknown among the ancients, and not justifiable by any principle of reason: though at the same time we must ascribe to it, in some degree, that extraordinary gentleness and complaisance of modern manners, and that respectful attention of one man to another, which at present render the social intercourses of life far more agreeable and decent than among the most civilized nations of antiquity.

Public opinion is not easily controlled by civil institutions; for which reason it may be questioned whether any regulations can be contrived of sufficient force to suppress or change the rule of honour which stigmatizes all scruples about duelling with the reproach of cowardice.

The inadequate redress which the law of the land affords for those injuries which chiefly affect a man in his sensibility and reputation, tempts many to redress themselves. Prosecutions for such offences, by the trifling damages that are recovered, serve only to make the sufferer more ridiculous.—This ought to be remedied.

For the army, where the point of honour is cultivated with exquisite attention and refinement, there might be established a court of honour, with a power of awarding those submissions and acknowledgments which it is generally the object of a challenge to obtain; and it might grow into a fashion with persons of rank of all professions to refer their quarrels to the same tribunal.

Duelling, as the law now stands, can seldom be overtaken by legal punishment. The challenge, appointment, and other previous circumstances, which indicate the intention with which the combatants met, being suppressed,

Duero
||
Duke.

suppressed, nothing appears to a court of justice but the actual encounter; and if a person be slain when actually fighting with his adversary, the law deems his death nothing more than manslaughter.

DUERO, or **DURO**, a large river, which, rising in Old Castile in Spain, runs from east to west, crosses the province of Leon, and after dividing Portugal from Spain by a southerly course, turns westward, crosses Portugal, and falls into the Atlantic ocean at Porto-Port.

DUGDALE, **SIR WILLIAM**, an eminent English historian, antiquarian, and herald, born in Warwickshire in 1605. He was introduced into the herald's office by Sir Christopher Hatton; and ascended gradually through all the degrees, until he became Garter principal king at arms. His chief work is the *Monasticon Anglicanum*, in three vols. folio; containing the charters and descriptions of all the English monasteries, adorned with engravings: in the former part of which work he was assisted by Mr Roger Dodsworth. Nor are his antiquities of Warwickshire less esteemed. He wrote likewise, among other things of less note, the History of St Paul's Cathedral; a History of Embanking and Draining; a Baronage of England; and completed the second volume of Sir Henry Spelman's Councils, with a second part of his Glossary. He died in 1686. His son, Sir John, was Norroy king at arms, and published a Catalogue of English Nobility. His daughter Elizabeth married the famous Elias Ashmole.

DUILLIA LEX, was enacted by M. Duillius, a tribune, in the year of Rome 304. It made it a capital crime to leave the Roman people without its tribunes, or to create any new magistrate without a sufficient cause. Another in 392, to regulate what interest ought to be paid for money lent.

DUILLIUS NEPOS, C. a Roman consul, the first who obtained a victory over the naval power of Carthage in the year of Rome 492. He took fifty of the enemy's ships, and was honoured with a naval triumph, the first that ever appeared at Rome. The senate rewarded his valour by permitting him to have music playing and torches lighted at the public expence every day while he was at supper. There were some medals struck in commemoration of this victory; and there exists a column at Rome which was erected on the occasion.

DUKE, (*Dux*), a sovereign prince, without the title or quality of king. Such are the dukes of Lorrain, of Holstein, of Savoy, of Parma, &c. The word is borrowed from the modern Greeks, who call *doucas* what the Latins call *dux*.

There are also two sovereigns who bear the title of *grand duke*: as the grand duke of Tuscany, and the grand duke of Muscovy, now called the *czar* or emperor of Russia. The title of *great duke* belongs to the apparent heir of Russia; and the title of *archduke* is given to all the sons of the house of Austria, as that of *archduchess* to all the daughters.

DUKE, (*Dux*), is also a title of honour or nobility, the next below princes.

The dukedom or dignity of duke is a Roman dignity, denominated *à ducendo*, "leading" or "commanding." Accordingly, the first dukes, *duces*, were the *duces exercituum*, "commanders of armies." Under the later emperors, the governors of provinces in

war time were entitled *duces*. In after times the same denomination was also given to the governors of provinces in time of peace. The first governor under the name of *duke* was a duke of the Marchia Rhætica, or Grisons, whereof mention is made in Cassiodorus; and there were afterwards thirteen dukes in the eastern empire, and twelve in the western. The Goths and Vandals, upon their overrunning the provinces of the western empire, abolished the Roman dignities wherever they settled. But the Franks, &c. to please the Gauls, who had long been used to that form of government, made it a point of politics not to change any thing therein: and accordingly they divided all Gaul into duchies and counties; and gave the names sometimes of dukes, and sometimes of counts, *comites*, to the governors thereof.

In England, during the Saxon times, Camden observes, the officers and commanders of armies were called dukes, *duces*, after the ancient Roman manner, without any addition. After the Conqueror came in, the title lay dormant till the reign of Edward III. who created his son Edward, first called the *Black Prince*, duke of Cornwall; which hath ever since been the peculiar inheritance of the king's eldest son during the life of his father; so that he is *dux natus non creatus*. After whom there were more made, in such manner as that their titles descended to their posterity. They were created with much solemnity, *per cincturam gladii, cap-pæque, et circuli aurei in capite impositionem*. However, in the reign of Queen Elizabeth, A. D. 1572, the whole order became utterly extinct; but it was revived about 50 years afterwards by her successor, in the person of George Villiers duke of Buckingham.

Though the French retained the names and forms of the ducal government, yet under their second race of kings there were scarce any such thing as dukes: but all the great lords were called *counts*, *peers*, or *barons*; excepting, however, the dukes of Burgundy and Aquitain; and the duke of France, which was a dignity Hugh Capet himself held, corresponding to the modern dignity of *maire de palais*, or the king's lieutenant. By the weakness of the kings, the dukes or governors sometimes made themselves sovereigns of the provinces trusted to their administration. This change happened chiefly about the time of Hugh Capet; when the great lords began to dismember the kingdom, so that that prince found more competitors among them than subjects. It was even with a great deal of difficulty they could be brought to own him their superior, or to hold of him by faith and homage. By degrees, what with force, and what by marriages, these provinces, both duchies and counties, which had been rent from the crown, were again united to it. But the title *duke* was no longer given to the governors of provinces. From that time *duke* became a mere title of dignity, annexed to a person and his heirs male, without giving him any domain, territory, or jurisdiction over the place whereof he was duke. All the advantages thereof now consist in the name, and the precedence it gives.

The dukes of our days retain nothing of their ancient splendour but the coronet on their escutcheon, which is the only mark of their departed sovereignty. They are created by patent, cincture of the sword, mantle of state, imposition of a cap and coronet of gold on the head, and a verge or rod of gold in their hand.

Duke

*Duke
||
Dumbness.

The eldest sons of dukes are by the courtesy of England styled *marquises*, though they are usually distinguished by their father's second title, whether it be that of *marquis* or *earl*: and the younger sons *lords*, with the addition of their Christian name, as Lord James, Lord Thomas, &c. and they take place of viscounts, though not so privileged by the laws of the land.

A duke has the title of *grace*; and being writ to, he is styled, in the herald's language, *most high, potent, and noble prince*. Dukes of the blood royal are styled *most high, most mighty, and illustrious princes*.

DUKE, among Hebrew grammarians, is an appellation given to a species of accents answering to our comma. See ACCENT.

DUKE-Duke, a quality given in Spain to a grandee of the house of Sylva, on account of his having several duchies from the uniting of two considerable houses in his person. Don Roderigo de Sylva, eldest son of Don Ruy Gomez de Sylva, and heir of his duchies and principalities, married the eldest daughter of the duke de l'Infantado; in virtue of which marriage, the present duke de Pastrana, who is descended therefrom, and is grandson of Don Roderigo de Sylva, has added to his other great titles that of duke-duke, to distinguish himself from the other dukes; some whereof may enjoy several duchies, but none so considerable ones, nor the titles of such eminent families.

DULCIFYING, in *Chemistry*, is the sweetening any matter impregnated with salts, by frequently washing it in pure water.

DULL, in the manege. The marks of a dull horse, called by the French *marques de ladre*, are white spots round the eye and on the tip of the nose, upon any general colour whatsoever. Though the vulgar take these spots for signs of stupidity, it is certain they are great marks of the goodness of a horse; and the horses that have them are very sensible and quick upon the spur.

DULLART, HEIMAN, a Dutch painter and poet. He was a pupil to Rembrandt, for whose works the few he left are often mistaken. He died in 1684.

DUMBARTON. See DUNBARTON.

DUMBNESS, the privation of the faculty of speech. The most general, or rather the sole cause of dumbness, is the want of the sense of hearing. The use of language is originally acquired by imitating articulate sounds. From this source of intelligence, deaf people are entirely excluded: they cannot acquire articulate sounds by the ear: unless, therefore, articulation be communicated to them by some other medium, these unhappy people must for ever be deprived of the use of language; and as language is the principal source of knowledge, whoever has the misfortune to want the sense of hearing, must remain in a state little superior to that of the brute creation. Deafness has in all ages been considered as such a total obstruction to speech or written language, that an attempt to teach the deaf to speak or read has been uniformly regarded as impracticable, till Dr Wallis and some others have of late shown, that although deaf people cannot learn to speak or read by the direction of the ear, there are other sources of imitation, by which the same effect may be produced. The organs of hearing and of speech have little or no connexion. Persons deprived

of the former generally possess the latter in such perfection, that nothing further is necessary, in order to make them articulate, than to teach them how to use these organs. This indeed is no easy task; but experience shows that it is practicable. Mr THOMAS BRAIDWOOD, late of Edinburgh, was perhaps the first who ever brought this surprising art to any degree of perfection. He began with a single pupil in 1764; and since that period has taught great numbers of people born deaf to speak distinctly; to read, to write, to understand figures, the principles of religion and morality, &c. At the time we first conversed with him, being a few years after the commencement of his practice, he had a considerable number of deaf pupils, some of them above 20 years of age, all making a rapid and amazing progress in those useful branches of education.

Mr Braidwood's principal difficulty, after he had discovered this art, was to make people believe in the practicability of it. He advertised in the public papers; he exhibited his pupils to many noblemen and gentlemen; still he found the generality of mankind unwilling to believe him. A remarkable instance of this incredulity occurred some years ago. A gentleman in England sent a deaf girl of his to Mr Braidwood's care. A year or two afterwards, Mr Braidwood wrote to the father, that his daughter could speak, read, and write distinctly. The father returned an answer, begging Mr Braidwood's excuse, as he could not believe it: however, he desired a friend of his, who was occasionally going to Edinburgh, to call at Mr Braidwood, and inquire into the truth of what he had wrote him: he did so; conversed with Mr Braidwood, saw the young lady, heard her read, speak, and answer any question he put to her. On his return, he told the father the surprising progress his child had made; but still the father thought the whole an imposition; the girl herself wrote to her father, but he looked upon the letter as a forgery. About this time the father died; and the mother sent an uncle and cousin of the deaf lady's from Shrewsbury, in order to be satisfied of the truth. When they arrived, Mr Braidwood told the girl her uncle and cousin were in the parlour; and desired her to go and ask them how they did, and how her mother and other friends did. The friends were astonished, and could hardly credit their own ears and eyes.

When we conversed with Mr Braidwood concerning the nature and method of teaching this wonderful art, he seemed to be very desirous of communicating and transmitting his discovery to posterity; but observed, and from the nature of the thing we believe it to be true, that he could not communicate it so fully in writing as to enable any other person to teach it. The first thing in the method is, to teach the pupil to pronounce the simple sounds of the vowels and consonants. We have even seen him performing this operation; but are unable to give a clear idea of it. He pronounces the sound of *a* slowly, pointing out the figure of the letter at the same time; makes his pupil observe the motion of his mouth and throat; he then puts his finger into the pupil's mouth, depresses or elevates the tongue, and makes him keep the parts in that position; then he lays hold of the outside of the windpipe, and gives it some kind of squeeze, which it is impossible to describe:

Dumbness. scribe: all the while he is pronouncing *a*, the pupil is anxiously imitating him, but at first seems not to understand what he would have him to do. In this manner he proceeds, till the pupil has learned to pronounce the sounds of the letters. He goes on in the same manner to join a vowel and a consonant, till at length the pupil is enabled both to speak and read.

This his pupils were taught not only the mere *pronunciation*, but also to understand the *meaning* of what they read, was easily ascertained by a conversation with any of them. Of this Mr Pennant gives a remarkable instance in a young lady of about 13 years of age, who had been some time under the care of Mr Braidwood. "She readily apprehended (says he) all I said, and returned me answers with the utmost facility. She read; she wrote well. Her reading was not by rote. She could clothe the same thoughts in a new set of words, and never vary from the original sense. I have forgot the book she took up, or the sentences she made a new version of: but the effect was as follows.

"*Original passage.* Lord Bacon has divided the whole of human knowledge into history, poetry, and philosophy; which are referred to the three powers of the mind, memory, imagination, and reason.

"*Version.* A nobleman has parted the total or all of man's study or understanding into, An account of the life, manners, religion or customs of any people or country; verse or metre; moral or natural knowledge: which are pointed to the three faculties of the soul or spirit; the faculty of remembering what is past, thought or conception, and right judgment."

Mr Braidwood's success since he went to settle in London is universally known. Several other persons have since attempted the same art with various degrees of ability. But a new and different method, equally laborious and successful we understand, is practised by the abbé de l'Epee of Berlin. We are informed * that he begins his instructions not by endeavouring to form the organs of speech to articulate sounds, but by communicating ideas to the mind by means of signs and characters: to effect this, he writes the names of things; and, by a regular system of signs, establishes a connexion between these words and the ideas to be excited by them. After he has thus furnished his pupils with ideas, and a medium of communication, he teaches them to articulate and pronounce, and renders them not only grammarians but logicians. In this manner he has enabled one of his pupils to deliver a Latin oration in public, and another to defend a thesis against the objections of one of his fellow-pupils in a scholastic disputation; in which the arguments of each were communicated to the other, but whether by signs or in writing is not said; for it does not appear that the abbé teaches his pupils to discern what is spoken, by observing the motion of the organs of speech, which those instructed by Messrs Braidwoods are able to do with astonishing readiness.

There is perhaps no word, says the abbé, more difficult to explain by signs than the verb *croire*, "to believe." To do this, he writes the verb with its significations in the following manner:

Je crois { *Je dis oui par l'esprit, Je pense qui oui.*
Je dis oui par le coeur, J'aime à penser que oui.
Je dis oui par la bouche.
Je ne vois pas des yeux.

After teaching these four significations, which he does **Dumbness,** by as many signs, he connects them with the verb, and adds other signs, to express the number, person, tense, and mood, in which it is used. If to the four signs, corresponding with the lines above mentioned, be added that of a substantive, the pupil will write the word *foi*, "faith;" but, if a sign, indicating a participle used substantively, be adjoined, he will express *la croyance*, "belief"; to make him write *croyable*, "credible," the four signs of the verb must be accompanied with one that indicates an adjective terminating in *able*; all these signs are rapidly made, and immediately comprehended.

M. Linguet, a member of the Royal Academy, having asserted that persons thus instructed could be considered as little more than automata, the abbé invited him to be present at his lessons, and expressed his astonishment that M. Linguet should be so prejudiced in favour of the medium by which he had received the first rudiments of knowledge, as to conclude that they could not be imparted by any other; desiring him, at the same time to reflect, that the connexion between ideas, and the articulate sounds by which they are excited in the mind, is not less arbitrary than that between these ideas and the written characters which are made to represent them to the eye. M. Linguet complied with the invitation; and the abbé having desired him to fix on some abstract term which he would by signs communicate to his pupils, he chose the word *unintelligibility*; which, to his astonishment, was almost instantly written by one of them. The abbé informed him, that to communicate this word he had used five signs, which, though scarcely perceivable to him, were immediately and distinctly apprehended by his scholars: the first of these signs indicated an internal action; the second represented the act of a mind that reads internally, or, in other words, comprehends what is proposed to it; a third signified that such a disposition is possible; these, taken together, form the word *intelligible*: a fourth sign transforms the adjective into the substantive; and a fifth, expressing negation, completes the word required. M. Linguet afterwards proposed this question, *What do you understand by metaphysical ideas?* which being committed to writing, a young lady immediately answered on paper in the following terms: "I understand the ideas of things which are independent of our senses, which are beyond the reach of our senses, which make no impression on our senses, which cannot be perceived by our senses." On reading this, we cannot help exclaiming with the poet, *Labor omnia vincit improbus!* a maxim by none more forcibly illustrated than by the abbé de l'Epee.

Periodical DUMBNESS. In the Ephemerides of the Curious, we have an account of a periodical dumbness, which had continued for more than 15 years, and had not gone off at the time the account was wrote. The person was son to an innkeeper at Jesing in the duchy of Wirtemberg in Germany. He was one night taken so ill after supper, that he could neither stand nor sit. He continued, for about an hour, oppressed with sickness to such a degree as to be in danger of suffocation. At the expiration of this time he grew better; but, during three months, he was much dejected, melancholy, and, at times, fearful. He was then suddenly struck

* *Nouv. Mem. de l'Academie Royale, &c. de Berlin, 1785. (Mon. Rev. vol. lxxx. p. 651).*

Dumfer-
line,
Dumfries.

struck dumb, and became unable to pronounce the least word, or form the least sound, though he could speak very articulately before. The loss of speech was at first instantaneous, and continued only a few minutes: but the duration of it began to lengthen every day; so that it soon amounted to half an hour, two hours, three hours, and at last to 23 hours, yet without any order. At last the return of speech kept so constant and regular an order, that, for 14 years together, he could not speak except from noon, during the space of one entire hour, to the precise moment of one o'clock. Every time he lost his speech, he felt something rise from his stomach to his throat. Excepting this loss of speech, he was afflicted with no other disorder of any animal function. Both his internal and external senses continued sound: he heard always perfectly well, and answered the questions proposed to him by gestures or writing. All suspicion of deceit was removed by his keeping exactly the same hour, though he had no access to any instruments by which time can be measured.

DUMFERMLINE, a royal borough of Scotland, situated in the county of Fife, 15 miles north-west of Edinburgh. W. Long. 30. 20. N. Lat. 56. 15. Here was formerly a magnificent abbey and palace of the kings of Scotland, in which the princess Elizabeth, daughter of King James VI. and mother of the princess Sophia, from whom the present royal family are descended, was born. In the inn of this town, it is said, is the marriage bed of James VI. and his queen: it is still entire, and used by strangers who lodge here. This place is noted for a manufactory of figured linen cloth called diaper. The town gave title of earl to a baronet of the Seton family, which was forfeited in the year 1690.

DUMFRIES, a county in the south of Scotland, comprehending the shire of Nithsdale, the stewarty of Annandale, and the lordship of Eskdale, extends in length from north-west to south-east about 60 miles, and is about 30 miles in breadth where broadest. It is bounded on the south-west by Galloway and part of Kyle; on the north-east by the counties of Roxburgh, Selkirk, and Peebles; on the north-west by Clydesdale; and on the south-east by Solway Frith and the marches between Scotland and England. A great part of the country is mountainous and overspread with heath, well stocked with game of all kinds: but the valleys, through which the Esk, the Auman, the Nith, and other smaller rivers run, are extremely pleasant; and some of them well cultivated and very fertile, and produce oats, barley, and wheat in abundance, both for maintaining the inhabitants and for exportation; while the mountainous parts afford pasture for innumerable flocks of sheep and herds of black cattle, many thousands of which are annually exported to England. In the valleys are several natural woods, and some extensive plantations of different kinds of timber. In the division called *Nithsdale*, are the rich lead mines of Wanlockhead, the coal mines of Sanquhar and Cairnburn, the inexhaustible lime quarries of Clofeburn and Barjag, and freestone in almost every parish. Annandale has the rich lime quarries of Kellhead and Comlongon, with plenty of freestone near the towns of Annan and Lochmaben: and in the lower part of Eskdale are limestone and coal in abundance.

The following is a view of the population of this Dumfries. county, with the number of souls in each parish, taken at two different periods, and extracted from the Statistical History of Scotland.

<i>Parishes.</i>	Population in 1755.	Population in 1790—1798.
1 Annan	1498	2500
Applegirth	897	741
Caerlaverock	784	955
Cannobie	1733	2725
5 Clofeburn	999	1490
Cummertrees	631	1056
Dalton	451	615
Dornock	716	738
Drysdale	1097	1600
10 Dumfries	4517	5600
Dunfcore	651	1033
Durrifdeer	1019	1031
Eskdalemuir	675	619
Ewes	392	320
15 Glencairn	1794	1700
Gratney	1051	1810
Hoddam	1393	1198
Hollywood	596	736
Hutton	993	583
20 Johnstou	494	565
Keir	495	520
Kirkconnell	899	1000
Kirkmahoe	1098	1200
Kirkmichael	894	950
25 Kirkpatrick Fleming	1147	1542
Kirkpatrick Juxta	794	617
Langholm	1833	2582
Lochmaben	1395	3000
Middlebie	991	1404
30 Moffat	1612	1600
Morton	435	908
Moufswald	553	628
Penpont	838	800
Ruthwell	599	1061
35 St Mungo.	481	640
Sanquhar	1998	2600
Tinwald	795	850
Torthorwald	584	660
Tundergarth	625	510
40 Tynron	464	500
Wamphray	458	487
42 Westerkirk	544	655
	<hr/>	<hr/>
	41,913	52,329
		41,913
		<hr/>
	Increase,	10,416

DUMFRIES, the capital of the above mentioned county, a handsome town, situated on a ridge or rising ground on the north-east side of the river Nith, about 10 miles above where it falls into Solway Frith, in N. Lat. 55. 8. 30. Long. W. of Greenwich Observatory, 3. 56. Its ancient name, it is said by some of the Scotch historians, was *Cotiac*; but on what authority we cannot tell. Its present name appears to have been derived partly from its situation, and partly from the monastery of Gray Friars that formerly stood near the head

Dumfries. head of the street called the *Friar vennal*, the kitchen of which is all that now remains; being only a corruption of *Drum friars*, or "the eminence of the friary:" and accordingly, till within these 40 or 50 years, it was always spelt *Drumfries*, and not *Dumfries*, as it is now for the sake of greater softness. Besides the pleasantness of its situation on the side of a beautiful winding river, it is surrounded on all sides with one of the finest and best cultivated sheets of dale country that one can anywhere meet with, and the prospect from it terminated, at the distance of a few miles, by a continued chain of hills, forming altogether one of the grandest natural amphitheatres perhaps in Britain. There was anciently a strong castle at the south end of the town belonging to the Cummings, lords of Badenoch, of which there are now no remains. Another castle was afterwards built at the north-west end, which was taken down about 76 years ago. On the north-east side of it, at some little distance, are the ruins of a chapel built by King Robert Bruce, and endowed for a number of priests to say mass for the repose of the soul of Sir Christopher Seaton his brother-in-law, who was taken prisoner by Edward I. at Loch Urr, and hanged at this place. It is now only employed as a burying-place for suicides. It is not certain at what period Dumfries was erected into a royal borough; but it must have been before the middle of the eleventh century, as a grave-stone was discovered some time ago bearing the date of 1079, and mentioning the person buried under it to have been a merchant and burghers of the town; and that it was a place of consequence in the beginning of the fourteenth century, is evident from this circumstance, that Edward II. called the estates of Scotland to meet there in the year 1307. In the above-mentioned monastery too, King Robert Bruce killed his rival Cumming lord of Badenoch, with the assistance of James Lindsay and Roger Kirkpatrick, on the 5th of February 1305. As to the present state of the town, the houses are well built and commodious, the streets spacious, open, and neatly paved. It has two very elegant churches, an Episcopal chapel with a fine little organ, besides three meeting houses belonging to different descriptions of sectaries; a tolbooth; a council chamber; a trades hall; a meal market; a strong prison; a correction house; a large hospital; an infirmary, with apartments for insane patients; a narrow bridge of nine arches over the river, said to have been built by one of the three daughters and co-heiresses of Alan Lord Galloway. A large village, called the *Bridge-end*, stands on the opposite side, and is within the stewarty of Kircudbright. The assizes for the county, and for the shire of Galloway and stewarty of Kircudbright, are held in the town twice a year. It is also the place for holding the sheriff and commissary courts, the quarter-sessions of the peace, and the courts of the commissioners of supply. It is governed by a provost, three bailies, a dean of guild, and a town council, composed of merchants and the convener and deacons of the incorporated trades, of which there are seven, viz. square-men, smiths, weavers, tailors, shoemakers, skimmers, and butchers; all of whom are chosen into their respective offices at Michaelmas annually. The trades got from King James VI. in one of his journeys to England, a small silver tube, like a pistol barrel, called the *silver gun*, with

VOL. VII. Part I.

his royal license to shoot for it every year. At that festival they all appear in arms, and march out of the town under their respective colours, to some convenient place, where they shoot at a mark; and the person that hits or shoots nearest to it, returns to town, marching at the convener's right hand, with the silver gun tied to his hat with ribbons; after which they conclude the day with a social entertainment. The town has a weekly market on Wednesday, with two annual fairs, the first on the Wednesday on or next after the 13th of February, and the other on the Wednesday on or next after the 25th of September. At these fairs vast numbers of horses and black cattle are sold; and no town in Scotland is better provided with all sorts of butcher meat in their season. But though well situated for fuel at a cheap rate, it has only two manufactures, one for stockings and the other for cottons; but the latter only in its infancy. Its foreign trade for many years has only consisted in timber, iron, and other articles for home consumption. It gives the title of earl to the chief of the family of Crichton; and is the seat of a presbytery and provincial synod. It contains about 6000 inhabitants.

DUMONT, FRANCIS, a Frenchman; compiler of a general collection of treaties of commerce, alliance, and peace, between the powers of Europe. This collection, with Barbeyrac's, containing the treaties B. C. makes 16 vols folio, very useful for historical writers. Dumont retired to Holland in 1720. The time of his death is uncertain.

DUMOSÆ (from *dumus*, "a bush;," an order of plants in the *Fragmenta methodi naturalis* of Linnæus, containing the following genera, viz. *Viburnum*, *Tinus*, *Opulus*, *Sambucus*, *Rondeletia*, *Bellonia*, *Cassine*, *Ilex*, *Tomax*, &c.

DUN, or BURG, the name of an ancient species of buildings, of a circular form, common in the Orkney and Shetland islands, the Hebrides, and northern parts of Scotland. The latter term points out the founders, who at the same time bestowed on them their natal name of *borg*, "a defence or castle," a Sævo-Gothic word; and the Highlanders universally apply to these places the Celtic name *dun*, signifying a hill defended by a tower, which plainly points out their use. They are confined to the countries once subject to the crown of Norway. With few exceptions, they are built within sight of the sea, and one or more within sight of the other; so that on a signal by fire, by flag, or by trumpet, they could give notice of approaching danger, and yield a mutual succour. In the Shetland and Orkney islands, they are most frequently called *wart* or *ward hills*, which shows that they were garrisoned. They had their wardmather, or watchman, a sort of centinel, who stood on the top, and challenged all who came in sight. The gackman was an officer of the same kind, who not only was on the watch against surprise, but was to give notice if he saw any ships in distress. He was allowed a large horn of generous liquor, which he had always by him, to keep up his spirits. Along the Orkney and Shetland shores, they almost form a chain; and by that means not only kept the natives in subjection, but were situated commodiously for covering the landing of their countrymen, who were perpetually roving on piratical expeditions. These towers were even made use of as

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Dunbar,
Dunbarton.

state prisons; for we learn from Torfæus, that after Sueno had surpris'd Paul, count of Caithness, he carried him into Sutherland, and confin'd him there in a Norwegian tower. Out of our own kingdom, no buildings similar to these are to be found, except in Scandinavia. On the mountain Swalberg in Norway is one; the Stir-biskop, at Upsal in Sweden, is another; and Umfoborg, in the same kingdom, is a third.

These towers vary in their inner structure; but externally are universally the same; yet some have an addition of strength on the outside. The burgh of Culswick in Shetland, notwithstanding it is built on the top of a hill, is surrounded with a dry ditch 13 feet broad; that of Snaburgh in Unst, has both a wet and a dry ditch; the first cut, with great labour, through the live rock. The burgh of Moura is surrounded by a wall, now reduced to a heap of stones, and the inside is cylindrical, not taper, as is usual with others. The burgh of Hogsfeter, upon an isle in a loch of the same name, has also its addition of a wall; a peculiarity in a causeway, to join it to the main land, and a singular internal structure. Numbers of little burghs, with single cells, are scattered about these islands, in the neighbourhood of the greater; and which probably were built by the poorer sort of people, in order to enjoy their protection. A multitude of places in these islands have the addition of burgh to their names, notwithstanding there is not a vestige of a tower near them; the materials having long since been carried away, and applied to various uses.

DUNBAR, a royal borough of Scotland, in the shire of East Lothian, once remarkable for a strong castle, the key of Scotland from the east, and which gave shelter to Edward II. of England in his flight from Bannockburn, but of which scarce a vestige now remains. Here are still preserved some of the Scottish pikes, six ells long, and formed both for offence and defence. This town has now a tolerable trade in the fisheries, and is remarkable for making good malt. Dunbar has given titles of honour to different families, who are all now extinct.

DUNBARTON, the county town of Lenox or Dunbarton shire, in Scotland, situated in W. Long. 4. 32. N. Lat. 56. 30. is a royal borough, and one of the most ancient towns of Scotland. It is said to have been once the capital of a kingdom of the Britons, established in the vale of the Clyde, and to have been one of the seats of Fingal, called in the poems of Ossian, the *tower of Babelutha*. Alchuid was indeed the name of this ancient capital of the Strathclydenfes; but whether it was situated on the seat of the present town, or confin'd within the precincts of the castle, cannot be exactly ascertained. Dunbarton is built upon the eastern bank of the Leven, which almost encircles it. The greater part of the buildings are old, and the principal street has an air of decayed grandeur. It was erected into a royal borough by Alexander II. in the year 1221, and declared to be free of all imposts and borough taxes; but, notwithstanding this material advantage, and the excellent harbour it possesses, it is by no means in a flourishing state. There is here a considerable glass-house, which employs about 130 hands; and some idea may be conceived of the extent of this manufacture, from the amount of the duties to government, which are on an average 3800l. sterling

per annum. This place is exceedingly well adapted for manufactures, both on account of its situation on the Clyde, and from its being well supplied with fuel at a cheap rate. Dunbarton anciently gave title of earl to a branch of the family of Douglas. It contains about 1900 inhabitants. The parish is nearly circular, having a diameter of about two and a half miles: the surface is flat, and the soil fertile, but shallow, inclining to gravel. The Clyde washes it on the south, and the Leven on the west, both of which contain excellent trout and salmon. The castle of Dunbarton lies at a small distance from the town, on the point of land formed by the junction of the Clyde and Leven; it is situated on the top of a rock, which presents a picturesque object: the rock divides about the middle, and forms two summits: the sides are craggy, and the buildings upon it, though not of themselves beautiful, have a good effect, and, as Mr Gilpin observes "serve to give it an air of consequence." The fortress is entered by a gate at the bottom; and within the rampart, which defends the entrance, is the guard-house, and lodgings for the officers; from hence the ascent is by a long flight of stone steps to the part where the rock divides: here is a strong battery, barracks for the garrison, and a reservoir always filled with water; above these, on the lower summit, are several batteries, which command a most extensive range. According to Pennant, the Britons, in very early times, made this rock a fortress, it being usual for them, after the departure of the Romans, to retire to the tops of craggy inaccessible mountains, to forests, and to rocks on the sides of rivers, or the shores of the sea. Boethius, however, asserts, that it was possessed by the Caledonians long before the Britons, and that it resisted all the efforts of Agricola to reduce it. The venerable Bede informs us, that it was the strongest fortification in the kingdom in his time, and deemed almost impregnable; it was reduced by famine in the year 756, by Egbert king of Northumberland, and taken by escalade in the year 1551. The rock seems to have been anciently a volcano: the sides are composed of rude basaltic columns, of which huge masses have been broken off, and fallen to the bottom, by the injuries of time. Many parts of the rock are strongly magnetic, causing the compass to vary at a considerable distance: this circumstance was long since noticed by Buchannan, (Scot. Hist. lib. xx. lect. 28.) As the castle of Dunbarton commands the navigation of the Clyde, and is the key of the western Highlands, the fortifications are generally kept in repair. It is garrisoned by a governor, lieutenant-governor, a fort-major, subaltern officers, and a company of invalids. The government is said to be worth 700l. per annum.

DUNBARTONSHIRE, or, as it was anciently called, the shire of *Lennox*, extends in length about 40 miles, and in breadth about 23. It is bounded on the north by Argyllshire; on the east by the counties of Perth and Stirling; on the south by the river Clyde, and part of Lanarkshire; and on the west by an arm of the sea, called *Loch Long*. The greater part of the county is covered with heathy hills, which are now assuming a more luxuriant appearance, since the introduction of sheep. Many of the mountains are elevated to a great height, Benlomond measuring 3158 feet above the level of the sea. The ridge, of which Ben-

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lomond is a part, is the beginning of that extensive ridge which crosses the country from this place to the east coast at Aberdeen, called the *Grampians*. The lower grounds, which lie on the banks of Loch Lomond, the river Clyde and the Leven, are not so fertile as the corresponding parts of some of the neighbouring counties; notwithstanding which, it is agreeably diversified, and well inhabited. The banks of the Leven, in particular, are covered with numerous bleachfields, printfields, and cotton-works, giving employment to thousands; while the villages erected for the accommodation of the workmen, the hamlets, and elegant seats, cannot fail to impress the mind with high ideas of the wealth, the industry, the public spirit, and the happiness of the inhabitants. Agriculture in this county has been rather neglected, and little attention has been paid to it till within these few years; but the public spirit has of late been roused to this most useful and important occupation; and the county of Dunbarton, which is capable of much improvement, is fast advancing in agricultural progress. The farmers here, indeed, possess numerous advantages: being near a seaport town, where every article bears the highest price, they find a ready market for their corn; and the numerous inhabitants in the immediate neighbourhood require supplies of other necessaries from the farmer. Upwards of 12,000 acres are covered with natural wood, and there are many fine lakes or lochs, of which Loch Lomond is the chief. Dunbartonshire contains one royal borough, Dunbarton, several thriving manufacturing villages; and is divided into 12 parishes, containing in all 18,408 inhabitants.

Population of this County at two different periods, from Statist. Hist. of Scotland.

Parishes.	Population in 1755.	Population in 1790—1798.
1 Arroquhar	466	379
Bonhill	901	2310
Cardross	795	2194
Cumbernauld	2303	1600
5-Dunbarton	1480	2003
Kilmarnock	1193	820
Kilpatrick, New	1390	1700
Kilpatrick, Old	1281	2452
Kirkintilloch	1696	2639
10 Luss	978	917
Roseneath	521	394
12 Row	853	1000
	<hr/> 13,857	<hr/> 18,408
		<hr/> 13,857
	Increase	4551

DUNCANNON, a fort in the county of Wexford, and province of Leinster, in Ireland, seated on the river Rofs. It commands the river, insomuch that no ship can pass to Waterford or Rofs without its permission. Here are barracks for three companies of foot. W. Long. 6. 30. N. Lat. 52. 10.

DUNCARDS, DUNKERS, or *Tunkers*. See TUNKERS.

DUNCOMBE, WILLIAM, younger son of John

Duncombe, Esq. of Stocks in Hertfordshire, in 1722 published a translation of Racine's *Athaliah*; which was well received by the public, and has gone through three editions. In 1724 he was editor of the works of Mr Needler; in 1735, of the poems of his deceased brother-in-law Mr Hughes, 2 vols 12mo; in 1737, of the miscellanies of his younger brother Mr Jabez Hughes, for the benefit of his widow, in one volume 8vo; and in 1745, of the works of the Rev. Mr Samuel Say, in one volume 4to. In 1726 he married the only sister of John Hughes, Esq. whom he long survived. In 1734 his tragedy of *Lucius Junius Brutus* was acted at Drury Lane theatre. It was published in 1735, and again in 1747. The works of Horace, in English verse, by several hands, were published by him in two vols 8vo, with notes, &c. in 1757. A second edition, in 4 vols 12mo, with many imitations, was published in 1762. In 1763 he collected and republished "Seven sermons by Archbishop Herring, on public occasions, with a biographical preface." He died Feb. 26. 1769, aged 80.

DUNDALK, a town of Ireland, in the county of Louth, about 40 miles from Dublin. It is a large, ancient, and thriving town, with a wide street, near a mile long, and a very fine market-house, near the entrance from Dublin. In the reign of Edward II. it was a royal city, and the last we read of where a monarch of all Ireland was actually crowned and resided. It was formerly very strong, and had many towers and small castles in it. It is very advantageously situated for a most extensive inland trade, and the port is very safe for shipping. The bay has good moorings at all times, in four to upwards of eight fathoms water, with very good land-marks, either for bringing up to, or making the harbour; and in crossing the bar at high water, or ordinary neap tides, there is from 15 to 18 feet water. The only cambric manufacture in Ireland is carried on in this town.

DUNDEE, a parliament town of Scotland, in the shire of Forfar or Angus, is seated on the north side of the river Tay, about 12 measured miles from its mouth, 40 measured miles north of Edinburgh, and 22 east from Perth, in W. Long. 2. 48. N. Lat. 56. 26. Its situation for commerce is very advantageous. Trading vessels of the largest burden can get into the harbour; and on the quay there are three very convenient and handsome warehouses built in 1756, as well as good room for shipbuilding, which is carried on to a large extent. The houses are built of stone, generally three or four stories high. The market-place or high street in the middle of the town is a very spacious oblong square, 360 feet long and 100 feet broad; from whence branch out the four principal streets, which with a number of lesser ones are all paved in the best manner. On the south side of the market-place stands the townhouse, an elegant structure, with a very handsome front, piazzas below, and a neat spire over it 140 feet high. This building was finished in the year 1734, and contains the guildhall, the court-room, a very neat mason lodge, the bank, vaulted repositories for the records, and the common prison, which is in the upper story, and does honour to the taste and humanity of the magistrates, under whose auspices it was constructed, being well aired commodious rooms, at the same time very strong and secure. Each prison is

Dundalk,
Dundee.

Dundee.

20 feet by 12, and $7\frac{1}{2}$ feet high, well arched above and below.

The meal market and shambles, which were formerly on the high street, and esteemed a nuisance, were removed some years ago; and in the place of the shambles there is now erected by the incorporated trades, on the east end of the above large square, a grand building, with a large and elegant cupola: in the ground flat of which is a very neat coffee room, and several merchants shops; and in the upper stories public rooms for each trade, and a common hall occasionally used as a theatre. This hall is 50 feet long, 30 feet broad, and 25 feet high; having its front to the square decorated with Ionic columns.

The opulence of the corporations, nine in number, may be inferred from this, that they had, along with the kirk session, but very lately finished a most elegant church when they set about building the hall. This church, which is called *St Andrew's Church*, stands on a rising ground a little north from the Cowgate street; and has an elegant spire 130 feet high, with a peal of bells much admired. There is a neat entry to the church by a broad gravel walk, with grass plots on every side; and the whole policies around it are laid out with excellent taste, and in a superb style, as complete and well executed as any in Scotland.

Dundee, beside *St Andrew's church*, has four other churches, and five ministers on the legal establishment. The old church, in which were originally four places of worship, when entire, had been a very magnificent building, with a large square Gothic tower or steeple 186 feet high, on the west end of the church. This building was in the form of a cross, erected by David earl of Huntingdon, brother to William I. of Scotland (surnamed the Lion), and was dedicated to the virgin Mary. This he did on his return from the third crusade (in which with 500 of his countrymen he had accompanied Richard I. of England) anno 1189, in gratitude for his deliverance from several imminent dangers, and particularly from shipwreck, by which he had nearly perished when in sight of this town. At the same time he changed the name of the town from *Allectum* to *Dei Donum*, whence its present name is thought by many to be derived; while others maintain that its name was *Duntay*, or "the hill of Tay." The word *Allectum* in the Gaelic signifies "beautiful," and harmonizes very well with the Scripture sense of the hill of God. The word *Duntay* has the very same signification, "the Hill of God;" and both agree with the delightful situation of Dundee, and unite in giving it with propriety the name of *Bonny Dundee*. The hill rises on the north of the town to a great height, and is called *The Law of Dundee*; *law* being a Saxon word for a round hill such as it is. On its top there are evidently the remains of a camp, said to have been first erected by Edward I. of England, and lastly repaired by General Monk. Where the meal market stood is now erected an elegant Episcopal meeting-house, with handsome shops below.

Dundee had an old castle which was demolished by the famous Scots governor Sir William Wallace, who was educated in this town. The castle had proved very useful to Edward I. when he put a garrison into it to awe the inhabitants; but Wallace getting possession, ordered it to be destroyed, lest it should again

fall into the hands of the English. This treatment so exasperated Edward, that, taking the town by storm, he set fire to the churches; and a number of the inhabitants having taken sanctuary there with their most valuable effects, were all burnt along with them. At that time he burnt also a great part of the town. The desolation he brought on the church has continued ever since, till the year 1787, when a noble edifice began to be built on the site of the one that was burnt down, and is now finishing; in which the ancient Gothic of the outside is excellently united with internal modern architecture, making one of the largest and neatest churches in the kingdom, and again completing the superb superstructure as erected at first by the earl of Huntingdon.

This town suffered greatly last century during the troubles of Charles II. and the usurpation of Oliver Cromwell; being sometimes under the command of one party, and at others in the mercy of another. In 1645 the marquis of Montrose took it by storm; and in 1651, under the command of its provost Major General Lumden, it vigorously opposed General Monk, who carried it by storm the 1st of September, and put all in arms to the sword. And so great were the riches of Dundee, all the neighbouring gentlemen having retired to it with their best effects as a place of safety, that every private soldier in General Monk's army had near 60l. sterling to his share of the plunder; there being above 60 merchant vessels in the harbour at that time, and the like number of vessels sailed for England loaded with the spoils of the unfortunate inhabitants. By these and other invasions, the whole ancient records of the town were destroyed, except a deed of Queen Mary, signed by herself, conferring the present burying ground; and some charters of the Charles's, confirming the ancient rights and privileges as disposed by the Alexanders and other kings of Scotland. This burying ground is the only place in Scotland we know of called *The Hoff*, a Dutch word bearing all the senses of the English word *court*, having been formerly the burying-ground of one of the many religious houses that were in this town previous to the Reformation.

Dundee at present has 113 vessels belonging to the port, of above 8200 tons burden, and near 1000 seamen. Of these vessels four went last season to Greenland, a trade of long standing here. And beside the three public warehouses on the shore, there are above twenty large private warehouses belonging to the merchants. The magistrates have been lately and still are at great expence in enlarging and fitting up the harbour, so as to render it of easy access, safe, and commodious; and have now made the passage over the Tay, where there is a great resort, so convenient, that travellers with their horses can get over at any time of tide, and a sufficient number of good boats properly manned are always ready. The river Tay opposite Dundee is about three miles broad; and being sheltered by high lands on both sides, is a safe road for ships of the greatest burden: the piers are extensive, broad, and well adapted for the purposes of loading and discharging vessels; and when the harbour is completed on the plan they are presently engaged in, there will not be one superior to it in Scotland.

To enable the town to repair the damage done by Cromwell's

Dundee.

Dundee. Cromwell's army, and also their harbour and other public works, Charles II. granted them a small impost of one-sixth of a penny sterling, for 25 years, on the pint of ale brewed or brought into the town for sale; which grant has been frequently renewed by subsequent parliaments; and the fund arising therefrom is most properly bestowed by the magistrates in improving the town, and making it more convenient and healthy. For these purposes, several new streets have been made, the old ones have been widened, and a large convenient one at a considerable expence, carried down from the market place to join a fine walk, shaded very neatly with trees, that leads to the shore. This new street makes the access easy and commodious, which was formerly much confined and steep.

Till the year 1745, the town had only draw wells; but since that period it is most amply supplied from a large fine fountain of excellent water, conveyed through the town in lead pipes, and discharged by good wells at proper distances. These, with a fine well in the town's meadows, and a stream of water that runs through the ward and the meadows (two large beautiful greens on the north of the town), make it as well watered as any town in Scotland; and these greens, just at hand, serve all the inhabitants most commodiously for the necessary labours of washing and bleaching.

The number of inhabitants in Dundee has increased above 4000 since 1780. There was then an accurate list of them taken, when they amounted to near 16,000; and lately they were reckoned and found within a few of 20,000; and since the year 1760 they are fully doubled. Beside the established churches, there are three Episcopal meeting-houses, two of Seceders, one of Methodists, two of Independents, one Berean, and two Anabaptists. One of the Independents is of the Glasite denomination. Mr John Glass, from whom they take that name, resided here; and his principles, though spread far and wide, have always had the greatest following in Dundee.

The trade in the town has increased amazingly of late. Its staple is undoubtedly the linen manufacture: for which in summer 1788 they imported from the Baltic 32 cargoes of flax, hemp, &c. (near 3000 tons), beside several quantities from London, Leith, and other places; and on an average the brown linen stamped for the two preceding seasons at the stamp office here amounted to about four millions of yards, in value about 115,000l. sterling. The flax is wrought up into coarse linens, chiefly Osnaburgs, sheetings, soldiers shirtings, &c. which is sold partly bleached (several fine large bleachfields being well employed in the neighbourhood) and partly brown. These linens are sent principally to London, Glasgow, and Liverpool, and from thence exported. Seven or eight vessels are constantly employed in the trade between Dundee and London, one of which sails every ten or twelve days. The making sailcloth has been long established here, and is carried on to a good extent. Two rope works have succeeded well, and a buckram work has also been established for several years. The Dundee coloured threads have been long justly esteemed, and give bread to a great number of people; indeed it was here that coloured threads first made a figure among the articles of trade in Scotland. Their sugar house, a large undertaking, and tan works, are

of established reputation. There has been lately erected a large glass work at a great expence, and a piumbery and foundery are also now carried on to advantage. No doubt the trade of the place has been greatly promoted by the Bank; which is carried forward on the surest and most steady footing, and has always managed the business of the town and neighbourhood in such a way as to keep any other establishment of that kind from taking place. Of late the cotton manufactory has been introduced; a number of jennies being employed in spinning, and several looms in weaving it. A large machine for spinning shorts or backens into candlewick, the first of the kind in Scotland, is also begun to work here, and promises to do well. A spirit for literature and education has greatly prevailed of late years in Dundee: for beside the public grammar school, which has an able rector and two good masters; the public English and writing school, where are three very proper masters; there is also lately established, and much encouraged, an academy for mathematics, French, Italian, and the polite arts, with masters suitable for the different branches, and a large apparatus for natural philosophy.

The salmon fishing in Tay is of much consequence; and the town is generally well supplied with fish of various kinds, though like every other article of living much raised in price of late years. Their other markets are also well supplied. An excellent nursery at the west end of the town has been much encouraged; and its neighbourhood is now adorned with many neat and elegant villas, showing the wealth and taste of the inhabitants.

Dundee is the birth-place of the celebrated and learned Hector Boethius, whose History of Scotland has been long in much reputation with many. It, with Perth, Forfar, St Andrew's, and Cupar, returns one member to the British parliament.

DUNFERMLINE. See DUMFERMLINE.

DUNG, in *Husbandry.* See AGRICULTURE *Index.*

Dung-Bird. See UPUPA, ORNITHOLOGY *Index.*

Dung-Mcers, in *Husbandry,* places where soils and dungs are mixed and digested together. These consist of pits, prepared at the bottom with stone and clay, that they may hold water, or the moisture of the dung: and ought to be so situated, that the sinks and drips of the houses and barns may run into them. Into these pits they cast refuse, fodder, litter, dung, weeds, &c. where they lie and rot together, till the farmer have occasion for them.

Dung-Worms, a species of fly worms, of a short and somewhat flat body, found in great plenty among cowdung in the months of September and October.

DUNGANNON, the chief town of the county of Tyrone, in the province of Ulster in Ireland. It is seated on a hill, and is a place of some strength.

DUNGARVON, a town of Ireland, in the county of Waterford. It stands on a bay of the same name, has a commodious harbour for ships, and is a walled town, with a castle. W. Long. 7: 55, N. Lat. 51. 57.

DUNIPACE. See CARRON.

DUNKELD, a town of Scotland, in the shire of Perth, seated on the north side of the river Tay, in a situation truly romantic, among very high and almost inaccessible crags, part naked and part

wooded.

Dunkers,
Dunkirk.

wooded. It is the chief market town of the Highlands, and has been greatly improved with buildings by the dukes of Athol.

The place is of great antiquity. It was the capital of ancient Caledonia. About the dawn of Christianity, a Pictish king made it the seat of religion, by erecting a monastery of Culdees there; which King David I. in 1130 converted into a cathedral, and it ranked as the first in Scotland. The entire shell of the cathedral still remains, the east end serving for a kirk, on the north side of which is the burial place of the dukes of Athol. The style of architecture is simple and elegant, the pillars round. The monument of one of its bishops remains on the fourth aisle of the nave, as also that of Alexander Stuart earl of Buchan, third son of Robert II. called for his cruelty *The Wolf of Badenoch*, who died 1394. The tower at the west end, with a singular crack down one of its sides, adds to the picturesque appearance which the whole makes among the venerable pines at the end of the duke's garden. His Grace's seat is a modern building, and not large, with pleasant walks and plantations, and a fine cascade on the water of Bran, which in its way from the western hills forms an astonishing fall of 150 feet, called the *Rumbling Brig*, from a narrow bridge made by the fall of two rocks across the stream. The pencil of Rosa never formed a more horrid scene. The stream has a second fall, which, without seeing the other, would be deemed capital. Sir James Galloway, master of requests to James VI. and Charles I. was created Lord Dunkeld 1645, whose grandson James was attainted at the Revolution, and dying at the beginning of this century, the title became extinct.

DUNKERS, DUNCARDS, or *Tunkers*. See TUNKERS.

DUNKIRK, a maritime town of the French Netherlands, situated in E. Long. 2. 28. N. Lat. 51. 10. and is the most easterly harbour on the side of France which is next to Great Britain.—It was originally a mean hamlet, consisting only of a few fishermen's huts: but a church being built there, it was from that, and from its situation, which is a sandy eminence, called *Dunkirk*; *dun* signifying, in the old Gallic language, a hill; and *kirk* being the old Flemish name for church.

About the year 960, Baldwin earl of Flanders, thinking the situation convenient, enlarged it into a kind of town, and surrounded it with a wall. In the year 1322, Robert of Flanders, who held it as an appendage, built a castle for its defence; which was afterwards demolished by the revolvers of Flanders. Robert of Bar erected a fortification round it, the remains of which are visible on the side next the harbour. The emperor Charles V. who held it as part of Flanders, built another castle to defend the harbour; but this was also demolished soon afterwards. In 1558, the French, under Marthal de Thermes, took Dunkirk by storm, and almost ruined the place; the Spaniards recovered it again in about a fortnight, and put all the French to the sword.

During a peace procured for the Dunkirkers by Philip II. of Spain, they rebuilt their town with greater splendour than before, and the inhabitants for a long time subsisted by privateers fitted out against

the Dutch; and at length, growing rich by these hostilities, they fortified their town and harbour, and fitted out no less than 15 ships of war at their own charge.

In 1634, the Dunkirkers agreed with the inhabitants of Bergues to dig a canal, at their joint expence, for a communication between the two towns; which was some time afterwards effected. By this time Dunkirk was become the best harbour the Spaniards possessed in Flanders, which induced many foreigners to settle there; and it being necessary to enlarge the town for their accommodation, a new fortified wall was built at a considerable distance from the former. In 1646, it was besieged and taken by the prince of Condé. In 1652 it was retaken by the archduke Leopold, then governor of the Netherlands. France entering into a treaty with England in 1655, the Dunkirkers, with views of pecuniary advantage, fitted out privateers against both those powers: the consequence of which was, that the French, assisted by Cromwell, attacked and took it; and it was put into the hands of the English, in consequence of a treaty between them and the French. To the English it was even then of very great importance; for, during the war in which it was taken the Dunkirkers had made prizes of no less than 250 of their ships, many of which were of great value. They therefore improved the fortifications, and built a citadel; yet they kept it only four years; for in 1662, two years after the Restoration, Charles II. sold this valuable acquisition to France, for the paltry sum of 500,000*l*. In consequence of this sale, the town was taken possession of for the French king Louis XIV. by the Count d'Estrades, on the 29th of November 1662. Louis having acquainted the celebrated engineer Monsieur Vauban, that he intended to make Dunkirk one of the strongest places in Europe, Vauban drew up a plan with that view, which was gradually executed. An arsenal was erected, large enough to contain all the store necessary for fitting out and maintaining a large fleet of men of war; the fortifications on the land side were constructed in a manner that was thought to render them impregnable; and, towards the sea, the entrance of the harbour being properly formed, it was fortified by the jetties, and the two forts called *Green Fort* and the *Fort of Good Hope* at their extremities; the famous risbank was also erected on the side of the jetties, and Fort Galliard on the other, to secure the town. These works were all completed in 1683; and in 1685, the whole circumference of the bastion was faced with masonry, and the keys completely formed: at the same time care was taken to build at the entrance of this bastion a sluice, almost 45 feet wide, that the ships within might be constantly afloat. In 1689, the fort called the *Cornichon*, and some other works, were completed. But though 30 years had been now employed in improving the fortifications of Dunkirk, it was not yet in the state in which Louis intended to put it; and therefore, in 1701, he caused a new risbank to be built, called *Fort Blanc*.

At the treaty of Utrecht, it having been made appear, that the privateers of Dunkirk had, during the war then closing, taken from the English no less than 1614 prizes valued at 1,334,375*l*. sterling, it was stipulated, that the fortifications of the city and port

Dunkirk.

Dunkirk port of Dunkirk should be entirely demolished, and the harbour filled up, so as never to be a harbour again.

Duns.

The treaty of which this demolition of Dunkirk was an article, was signed on the 28th of April 1713; but the demolition did not take place till the September following, when the queen deputed Colonel Armstrong and Colonel Clayton to oversee the execution of the treaty as far as concerned the works and harbour of Dunkirk.

Under the inspection of these gentlemen, the places of arms were broken down, the ditches filled up, and the demi-lunes, bastions, and covered way, totally destroyed; the citadel was razed, and the harbour and basin filled up; the jetties were also levelled with the strand, and all the forts which defended the entrance into the harbour were demolished. A large dam, or bar, was also built across the mouth of the harbour between the jetties and the town, by which all communication between the harbour and the canal, which formed its entrance, was entirely cut off. The sluices were also broken up, and the materials of them broken to pieces.

But this was no sooner done, than Louis XIV. ordered 30,000 men to work incessantly upon a new canal, the canal of Mardick, which in a short time they accomplished; by which the harbour was rendered almost as commodious as ever; but in 1717 this likewise was rendered unserviceable.

In the year 1720, during a great storm, the sea broke up the bar or dam, and restored to the Dunkirkers the use of the harbour in a very considerable degree.

In the year 1740, when Great Britain was engaged in a war with Spain, Louis XV. set about improving the advantage which Dunkirk had derived from the storm in 1720, by restoring the works, and repairing the harbour. He rebuilt the jetties, and erected new forts in the place of those which had been destroyed; and soon afterwards he espoused the cause of Spain, and became a principal in the war against us.

But at the peace of Aix-la-Chapelle in 1748, it was stipulated, that all the works towards the sea should be destroyed a second time; yet, before the declaration of the last war, the place was in as good a state of defence towards the sea as it was at any time during the war which was concluded by the treaty of Aix-la-Chapelle.

DUNSE, a market town of Scotland, in the shire of Mers, situated in W. Long. 2. 15. N. Lat. 55. 42. It is seated on a rising ground in the middle of the shire, and has a weekly market for cattle. It is by some reputed the birth-place of the famous John Duns Scotus. A mile south of the town is a well of mineral water, of great use as a deobstruent and antiscorbutic, first discovered in 1747 by Dr Thomas Simpson who practised there.

DUNS SCOTUS, *John*, a Franciscan friar, commonly called *Doctor Subtilis*, was born in the year 1274; but whether in England, Scotland, or Ireland, hath long been a matter of dispute among the learned of each nation. Dempster, Mackenzie, and other Scottish writers, assert positively that he was born at Dunse, a town in Scotland, about 15 miles from Berwick; and, to secure him more effectually, Mackenzie makes

him descended from the Dunses in the Mers. Mac-caghwell, an Irish author, who wrote the life of this Scotus, proves him to have been born at Down in the province of Ulster in Ireland: but Leland, Bale, Camden and Pits, assure us, that he was born at Dunstone in the parish of Emildune, near Alnwick in Northumberland; and this opinion is rendered probable by the following conclusion of his manuscript works in the library of Merton college in Oxford.—“Here end the writings of that subtle doctor of the university of Paris, John Duns, who was born in a certain village, in the parish of Emildune, called *Dunston*, in the county of Northumberland.” We are told, that when a boy, he became accidentally known to two Franciscan friars; who, finding him to be a youth of very extraordinary capacity, took him to their convent at Newcastle, and afterwards persuaded him to become one of their fraternity. From thence he was sent to Oxford, where he was made fellow of Merton college and professor of divinity; and Mackenzie says, that not less than 30,000 students came to Oxford to hear his lectures. His fame was now become so universal, that the general of his order commanded him to go to Paris, that the students of that university might also profit from his lectures. He went to Paris in the year 1304, where he was honoured first with the degree of bachelor, then of doctor of divinity, and in 1307 was appointed regent of the divinity schools: during his residence here, the famous controversy about the *Immaculate conception of the virgin Mary* arose. Albertus Magnus maintained that she was born in original sin. Scotus advanced 200 arguments in support of the contrary opinion, and convinced the university of Paris that she was really conceived immaculate. This important nonsense, however, continued to be disputed till the year 1496, after the council of Basil, when the university of Paris made a decree, that no student, who did not believe the *immaculate conception*, should be admitted to a degree. Our author had not been above a year at Paris, when the same general of the Franciscans ordered him to remove to Cologne; where he was received with great pomp and ceremony by the magistrates and nobles of that city, and where he died of an apoplexy soon after his arrival, in the year 1308, in the 34th year of his age. Some writers have reported, that Scotus was buried in an epileptic fit; and that, upon removing his bones, he appeared to have turned himself in his coffin. This *Doctor Subtilis* was doubtless one of the first wranglers of his time, admirably well versed in scholastic divinity, and a most indefatigable scribbler; but the misfortune is, that all his huge volumes do not contain a single page worth the perusal of a rational being. He was the author of a new sect of schoolmen called *Scotists*; who opposed the opinions of the Thomists, so called from St Thomas Aquinas. The reader will find a more particular account of Scotus in the Franciscan Martyrology, published at Paris in 1638.—He was a most voluminous writer; his works making 12 vols folio, as published at Lyons by Luke Wadding, 1639.

DUNSTABLE, a town in Bedfordshire, with a market on Wednesdays. It is seated on a chalky hill; and has ponds in the streets, which are never dry though only supplied with rain-water. It is remarkable for several good inns, it being a great thoroughfare on the

Duns,
Dunstable.

Dunstaff-
nage,
Dunstan.

northern road. It consists of four streets, intersecting each other at right angles; and in the centre stood one of those beautiful crosses of Queen Eleanor, which was destroyed by the enthusiasts in the time of the civil wars. W. Long. o. 29. N. Lat. 51. 50.

DUNSTAFFNAGE. See LORNE.

DUNSTAN, a famous saint, and archbishop of Canterbury: of whom the monkish historians give us the following account. He was descended from a noble family in Wexsex, and educated in the abbey of Glastonbury. Here he studied so hard, that it threw him into a violent fever which brought him to the very point of death. When the whole family were standing about his bed, dissolved in tears, and expecting every moment to see him expire, an angel came from heaven in a dreadful storm, and gave him a medicine which restored him to perfect health in a moment. Dunstan immediately started from his bed, and run with all his speed towards the church to return thanks for his recovery; but the devil met him by the way, surrounded by a great multitude of black dogs, and endeavoured to obstruct his passage. This would have frightened some boys; but it had no such effect upon Dunstan; who pronouncing a sacred name, and brandishing his stick, put the devil and all his dogs to flight. The church doors being shut, an angel took him in his arms, conveyed him through an opening in the roof, and set him softly down on the floor, where he performed his devotions. After his recovery, he pursued his studies with the greatest ardour, and soon became a perfect master in philosophy, divinity, music, painting, writing, sculpture, working in gold, silver, brass, and iron, &c. When he was still very young he entered into holy orders, and was introduced by his uncle Athelm archbishop of Canterbury to King Athelstan; who, charmed with his person and accomplishments, retained him in his court, and employed him in many great affairs. At leisure hours he used to entertain the king and his courtiers with playing on his harp, or some other musical instrument; and now and then he wrought a miracle, which gained him great admiration. His old enemy the devil was much offended at this, and prompted some envious courtiers to persuade the king that his favourite was a magician, which that prince too readily believed. Dunstan discovering by the king's countenance that he had lost his favour, and resolving to resign rather than be turned out, retired from court to another uncle, who was bishop of Winchester. This good prelate prevailed upon his nephew to forsake the world and become a monk; after which he retired to a little cell, built against the church wall of Glastonbury. Here he slept, studied, prayed, meditated, and sometimes amused himself with forging several useful things in brass and iron. One evening, as he was working very busily at his forge, the devil, putting on the appearance of a man, thrust his head in at the window of his cell, and asked him to make something or other for him. Dunstan was so intent upon his work that he made no answer; on which the devil began to swear and talk obscenely, which betrayed the lurking fiend. The holy blacksmith, putting up a secret ejaculation, pulled his tongs, which were red hot, out of the fire, seized the devil with them by the nose, and squeezed him with all his strength; which made his infernal majesty roar and

scold at such a rate, that he awakened and terrified all the people for many miles around. Thus far the legend.

Ridiculous as were these fictions, they served, in those times of ignorance, to procure Dunstan a reputation which has been confirmed by the authority of several succeeding historians. It appears that this extraordinary person was called to court by King Edmund, A. D. 941; who bestowed upon him the rich abbey of Glastonbury, which for his sake he honoured with many peculiar privileges. He enjoyed a very high degree of the favour of this prince during his short reign of six years; but he stood much higher in the favour of his brother and successor King Edred, to whom he was confessor, chief confidant, and prime minister. He employed all his influence during this period of court favour in promoting the interest of the monks of the Benedictine order, to which he belonged, and of which he was a most active and zealous patron. Having the treasures of these two princes, especially of the last, very much at his command, he lavished them away in building and endowing monasteries for these monks, because almost all the old monasteries were in the possession of secular canons. Not contented with this, he persuaded Edred (who was a bigotted valetudinary) to bestow such immense treasures on the churches and monasteries by his last will, that the crown was stripped of its most valuable possessions, and left in a state of indigence. This conduct of Dunstan, while he was in power, rendered him very odious to Edwi, who succeeded his uncle Edred A. D. 955; and his rude behaviour to himself, and his beloved Queen Elgiva, raised the resentment of that prince so high, that he deprived him of all his preferments, and drove him into exile*. The banishment of Dunstan, the great patron, or (as Malm-

* See Eng-
land, N^o 57.

sufferings

Dunstan. sufferings of the persecuted canons had excited much compassion; and many of the nobility, who had been overawed by the power and zeal of the late king, now espoused their cause and promoted their restoration. Elferc duke of Mercia drove the monks by force out of all the monasteries in that extensive province, and brought back the canons, with their wives and children; while Elfwin duke of East Anglia, and Brithnot duke of Essex, raised their troops to protect the monks in these countries. To allay these commotions, several councils were held: in which Dunstan was so hard pushed by the secular canons and their friends, that he was obliged to practise some of his holy stratagems; and finally, by dint of miracles, overcame all opposition*.

* See *Eng-land*, No 64. St Dunstan died A. D. 988, in the 64th year of his age, having held the bishopric of London, together with the archbishopric of Canterbury, about 27 years. As this prelate was the great restorer and promoter of the monastic institutions, the grateful monks, who were almost the only historians of those dark ages, have loaded him with the most extravagant praises, and represented him as the greatest wonder-worker and highest favourite of heaven that ever lived. To say nothing of his many conflicts with the devil, in which he often belaboured that enemy of mankind most severely, the following short story, which is told with great exultation by his biographer Osbern, will give the reader some idea of the astonishing impiety and impudence of those monks, and of the no less astonishing blindness and credulity of those unhappy times. "The most admirable, the most ineffable Father Dunstan (says that author), whose perfections exceeded all human imagination, was admitted to behold the mother of God and his own mother in eternal glory; for before his death he was carried up into heaven, to be present at the nuptials of his own mother with the Eternal King, which were celebrated by the angels with the most sweet and joyous songs. When the angels reproached him for his silence on this great occasion, so honourable to his mother, he excused himself on account of his being unacquainted with those sweet and heavenly strains; but being a little instructed by the angels, he broke out into this melodious song, O King and Ruler of nations," &c. It is unnecessary to make any comment on this most shocking story.

The violent and too successful zeal of Dunstan and his associates, in promoting the building and endowing so great a number of houses for the entertainment of useless monks and nuns, was very fatal to their country: for by this means a spirit of irrational unmanly superstition was diffused amongst the people, which debased their minds, and diverted them from nobler pursuits; and a very great proportion of the lands of England being put into hands who contributed nothing to its defence, rendered it an easy prey, first to the insulting Danes, and afterwards to the victorious Normans.

DUNUM, a Celtic term, denoting a hill or eminence, and which often concurs to form the names of towns, to signify their high situation, places of strength or citadels, hills or eminences, being adapted to such structures. See DUN.

DUNUM (Ptolemy), a town of Ireland; now thought

to be *Down* or *Down-Patrick*, in the county of Down. W. Long. 5. 57. N. Lat. 54. 23.

DUO, in *Music*, a song or composition, to be performed on two parts only, one sung, the other played on an instrument, or by two voices.

Duo is also when two voices sing different parts, as accompanied with a third, which is a thorough bass. It is seldom that unisons and octaves are used in duos, except at the beginning and end.

DUODECIMA, in *Music*, is the twelfth or the fifth doubled.

DUODENUM. See ANATOMY *Index*.

DUPIN, LEWIS ELLIS, a learned doctor of the Sorbonne, and one of the greatest critics of his time, especially in ecclesiastical matters, was born at Paris in 1657. When he published the first volume of his *Bibliothèque Universelle des Auteurs Ecclesiastiques*, in 1686, the liberty with which he treated some ecclesiastical writers, gave such offence, that M. de Harlay, archbishop of Paris, obliged Dupin to retract many propositions, and suppressed the work. He was nevertheless suffered to continue it, by altering the title from *Bibliothèque Universelle* to *Bibliothèque Nouvelle*. This great undertaking, continued in several successive volumes, though sufficient to occupy the life of an ordinary man, did not hinder M. Dupin from obliging the world with several other works. He was a man of prodigious reading; and had an easy happy way of writing, with an uncommon talent at analyzing the works of an author; which makes his Ecclesiastical *Bibliothèque* so valuable. M. Dupin was professor of philosophy in the royal college; but was banished some time from the chair to Chatelherault, on account of the famous *Cas de Conscience*; but was restored, and died in 1719.

DUPLE, among mathematicians, denotes the ratio of 2 to 1. Thus the ratio of 8 to 4 is duple, or as 2 to 1.

Sub-Duple Ratio, is just the reverse of the former, or as 1 to 2. Such is 4 to 8, or 6 to 12.

DUPLICATE, among lawyers, denotes a copy of any deed, writing, or account. It is also used for the second letters-patent, granted by the lord chancellor in a case wherein he had before done the same. Also a second letter written and sent to the same party and purpose as a former, for fear of the first's miscarrying, is called a *Duplicate*.

Duplicate Proportion or *Ratio*. See RATIO.

DUPLICATION, in general, signifies the doubling of any thing, or multiplying of it by 2: also the folding of any thing back again on itself.

DUPPLICATION, among anatomists, a term used to denote the folds of any membrane or vessel: thus we say, the *duplicatures of the intestines, peritonæum*, &c.

DUPONDIUS, in antiquity, a weight of two pounds, or money of the value of two asses. See AS.

As the as at first weighed a just pondo or libra, the dupondius then weighed two; and hence the name.

And though the weight of the as was afterwards diminished, and of consequence that of the dupondius also, yet they still retained the denomination. See POUND and LIBRA.

DUPPA, BRIAN, a learned English bishop, born in

Duo
||
Duppa.

Durandus
||
Durer

1589 at Lewisham in Kent, of which place his father was then vicar. In 1634, he was instituted chancellor of the church at Sarum, and soon after made chaplain to Charles I. He was appointed tutor to Charles prince of Wales, and his brother James duke of York; was made bishop of Chichester; and in 1641 translated to Salisbury, though the confusions that followed deprived him of all benefit from his promotion. Charles I. held him in high esteem, and he is said to have assisted the king in composing the *Eikon Basilike*. On the Restoration he was made bishop of Winchester, and lord high almoner; but died in 1662. He bequeathed large sums to charitable purposes; and published a few sermons, with other religious pieces.

DURANDUS, WILLIAM, born at Puimoisson in Provence, in the 13th century, was one of the most knowing lawyers of his time. Pope Martin made him one of his nuncios, and then bishop of Mende and Languedoc. His *Speculum Juris* gave him the name of *Speculator*; his second piece was *Rationale divinorum officiorum*, containing eight books. He wrote several others.

DURANTA, in *Botany*, a genus of plants, belonging to the didynamia class, and in the natural method ranking under the 40th order, *Personate*. See *BOTANY INDEX*.

DURATION, an idea we get by attending to the fleeting and perpetual perishing parts of succession. See *METAPHYSICS*.

DURATION, as marked by certain periods and measures, is what we most properly call *time*. See *TIME*.

DURATION of Action, according to Aristotle, is confined to a natural day in tragedy; but the epopea, according to the same critic, has no fixed time. See *POETRY*.

DURER, ALBERT, descended of an Hungarian family, and born at Nuremberg in 1471, was one of the best engravers and painters of his age. He was at the same time a man of letters and a philosopher; and he was an intimate friend of Erasmus, who revised some of the pieces which he published. He was a man of business also, and for many years the leading magistrate of Nuremberg. Though not the inventor, he was one of the first improvers of the art of engraving; and he bethought himself of working also in wood, for expedition, having an inexhaustible fund of designs. In many of those prints which he executed on copper, the engraving is elegant to a great degree. His *Hell-Scene* particularly, which was engraved in the year 1513, is as highly finished a print as ever was engraved, and as happily executed. In his wooden prints too we are surprised to see so much meaning in so early a master; the heads so well marked, and every part so well executed.—This artist seems to have understood the principles of design. His composition, too, is often pleasing; and his drawing generally good. But he knows very little of the management of light; and still less of grace: and yet his ideas are purer and more elegant than we could have supposed from the awkward archetypes which his country and education afforded. In a word, he was certainly a man of a very extensive genius; and, as Vasari remarks, would have been an extraordinary artist, if he had had an Italian instead of a German education. His prints are very numerous.

They were much admired in his own lifetime, and eagerly bought up; which put his wife who was a teasing woman, upon urging him to spend more time upon engraving than he was inclined to do. He was rich; and chose rather to practise his art as an amusement than as a business. He died in the year 1527.

DURESSE, *HARDSHIP*, in *Law*, is where a person is kept in prison or restrained of his liberty, contrary to order of law; or is threatened to be killed, maimed, or beaten. In which case, if a person be in prison, or in fear of such threats, make any speciality or obligation, by reason of such imprisonment or threats, such deed is void in law; and in an action brought on such speciality, the party may plead, that it was brought by duress.

D'URFEY, THOMAS, an eminent English satirist and songster, whose name, though as well known as that of any writer extant, yet there are very few particulars of his life to be collected. He was born in Devonshire; but when, where, or of what family, are all uncertain. He was bred to the law, which he forsook for the more agreeable employment of writing plays and songs; and the latter he had so happy a talent both of writing and singing, that he received many favours from persons of quality on that account. Even crowned heads did not disdain his company. The writer of the *Guardian*, N^o 67. tells us, he remembered to have seen Charles II. leaning on Tom D'Urfeys shoulder more than once, humming over a song with him. This indeed was not extraordinary in so merry a monarch; but even the phlegmatic King William could relax his muscles on hearing him sing. He was certainly by all accounts a cheerful, honest, good-natured man; but as this character does not include prudence, D'Urfeys grew poor as he grew old: and prevailing on the managers of the playhouse to act his comedy of the *Plotting Sisters* for his benefit, Mr Addison wrote the above-mentioned paper in the *Guardian* with another, N^o 82. representing him in a good-humoured light, to procure him a full house. He died very old, in 1723.

DURHAM, BISHOPRIC OF, one of the counties of England. Before the arrival of the Romans it was included in the British principality of the Brigantes, and after their arrival made part of the province of Maxima Cæsariensis. During the Heptarchy it made part of the kingdom of Northumberland, the 5th established, which began in 547, and ended in 827, having been governed by 31 kings. It was not mentioned by Alfred in his division of counties, being at that time considered as a part of Yorkshire. At present it is included in the northern circuit, in the province of York; and is a diocese and principality under the government of its own bishop, being a county palatine, the second in rank, and the richest in England. It is bounded on the north by Northumberland, on the south by Yorkshire, on the east by the North sea, and on the west by Cumberland. It is 39 miles long, 35 broad, and 107 in circumference; containing 410,000 square acres, or 758 square miles; with 97,000 inhabitants, 80 parishes, 21 vicarages, one city (Durham), and 9 market towns, viz. Stockton, Sunderland, Barnard-Castle, Darlington, Stanhope, Hartlepool, Auckland, Staindrop, and Marwood; besides 223 villages. It is divided

Duresse
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Durham.

Durham. divided into 4 wards, sends 4 members to parliament, pays three portions of the land tax, and provides 400 of the national militia. It has 21 parks, 4 castles, and 20 bridges, with the rivers Tees, Tine, Were, Tame, Lune, Darwent, Gauntles, Skern, &c. and the Lune and Teesdale forests. Its principal products are lead, coals, iron, corn, mustard, salt, glass, fine ale, with excellent butter and salmon. The soil is various; the south is rich, but the western parts rocky and moorish.

Durham, as already observed, is a county palatine, governed by the bishop, who had formerly great prerogatives. He had power to create barons, appoint judges, convoke parliaments, raise taxes, and coin money. The courts of justice were kept in his name; and he granted pardons for trespasses, alienations, rapes, murders, and felonies of every denomination. He erected corporations, granted markets and fairs, created officers by patent, was lord admiral of the seas and waters within the county palatine: great part of the lands were held of the *see in capite*. In a word, he exercised all the power and jurisdiction of a sovereign prince. How and at what period these prerogatives were obtained, it is not easy to determine. Malmesbury says, the lands were granted by King Alfred, who likewise made the church a sanctuary for criminals. This fee was anciently called the *patrimony of St Cuthbert*, who had been bishop of Landisfarne or Holy Island near Berwick. His bones being transferred to Durham, were long esteemed as precious relics; and the people of the county considered themselves as Halwerk men, exempted from all other but holy work, that is, the defence of St Cuthbert's body. Certain it is, they pretended to hold their lands by this tenure; and refused to serve out of the county either for the king or bishop: but King Edward I. broke through these privileges, and curtailed the prerogatives of the bishops, which were still further abridged by Henry VIII. Nevertheless, the bishop is still earl of Sadberg, a place in this county which he holds by barony. He is sheriff paramount, and appoints his own deputy, who makes up his audit to him, instead of accounting to the exchequer. He has all the forfeitures upon outlawries: and he and his temporal chancellor act as justices of the peace for the county palatine, which comprehends Creke in Yorkshire, Bedlington, Northam, and Holy Island, in Northumberland; the inhabitants of these places having the benefit of the courts at Durham. The judges of assize, and all the officers of the court, have still their ancient salaries from the bishop; and he constitutes the standing officers by his letters patent. He has the power of presiding in person in any of the courts of judicature. Even when judgment of blood is given, this prelate may sit in court in his purple robes, though the canons forbid any clergyman to be present in such cases: hence the old saying, *Solum Dunelmense sola jus dicet et ense*. It was not till the reign of Charles II. that the bishopric sent representatives to parliament.

DURHAM, the capital of the above-mentioned county, is situated in W. Long. 1. 14. N. Lat. 54. 50. It stands on a hill almost surrounded by the river Were; and is considerable for its extent and the number of its inhabitants, as well as for being the see or seat of

the bishop, who is lord paramount. It stands about 280 miles north from London; being remarkable for the salubrity of its air, and the abundance and cheapness of its provisions. These circumstances have induced a great deal of good company to take up their residence at Durham, which is still further animated by the presence and court of the bishop and his clergy. The town is said to have been built about 70 years before the Roman conquest, on occasion of bringing hither the body of St Cuthbert. It was first incorporated by King Richard I. but Queen Elizabeth extended its privileges. At length, in the year 1684, it obtained a charter; in consequence of which, it is now governed by a mayor, 12 alderman, 12 common council men, with a recorder and inferior officers. These can hold a court leet and court baron within the city; but under the style of the bishop, who, as count palatine, appoints a judge, steward, sheriffs, and other inferior magistrates. The mayor and alderman also keep a *pie pouldres* court at their fairs, and pay a yearly toll to the bishop. They have a weekly market on Saturday, and three annual fairs. Durham is about half a mile in length, and has been by some compared to the figure of a crab, the market place exhibiting the body, and the claws being represented by the streets, which bend according to the course of the river, which almost surrounds one part of the city. They are, moreover, dark and narrow; and some of them lying on the acclivity of a steep hill, are very difficult and dangerous to wheel carriages. The houses are in general strong built, but neither light nor elegant. The most remarkable edifices are the cathedral, with six other churches, three standing in the city, and as many in the suburbs; the college; the castle, or bishop's palace; the tolbooth near St Nicholas's church; the cross and conduit in the market place; with two bridges over the Were. The cathedral was begun by Bishop Carlepho in the 11th century. It is a large, magnificent, Gothic structure, 411 feet long, and 80 in breadth, having a cross aisle in the middle 170 feet in length, and two smaller aisles at each end. On the south side is a fine cloister; on the east, the old library, the chapter house and part of the deanery; on the west, the dormitory, under which is the treasury and chantry; and on the west side is the new library, an elegant building begun by Dean Sudbury about 70 years ago, on the spot where stood the old refectory of the convent. The middle tower of the cathedral is 212 feet high. The whole building is arched and supported by huge pillars. Several of the windows are curiously painted; and there is a handsome screen at the entrance into the choir. Sixteen bishops are interred in the chapter house, which is 75 feet long, and 33 broad, arched overhead, with a magnificent seat at the upper end for the instalment of the bishops. The consistory is kept in the chapel of west aisle called *Galilee*, which was built by Bishop Pusey, and had formerly 16 altars for women, as they were not allowed to advance farther than the line of marble by the side of the font; here likewise are deposited the bones of the venerable Bede, whose eulogium is written on an old parchment scroll that hangs over his tomb. The long cross aisle at the extremity of the church was formerly distinguished by nine altars, four to the north, and four to the south, and the most magnificent in the middle dedicated to the patron St Cuth-

Durham.

Durham. bert, whose rich shrine was in this quarter, formerly much frequented by pilgrims. The church is possessed of some old records relating to the affairs of Scotland, the kings of which were great benefactors to this cathedral. The ornaments here used for administering the divine offices, are said to be richer than those of any other cathedral in England. Before the Reformation, it was distinguished by the name *Ecclesia sanctæ Mariæ et sancti Cuthberti*; but it obtained the appellation of *Ecclesia cathedralis Christi et beatæ Mariæ*, in the reign of Henry VIII. who endowed the deanery with 12 prebendaries, 12 minor canons, a deacon, subdeacon, 16 lay singing men, a schoolmaster and usher, a master of the choir, a divinity reader, eight almsmen, 18 scholars, 10 choristers, two vergers, two porters, two cooks, two butlers, and two sacristans. On the south side of the cathedral is the college; a spacious court formed by the houses of the prebendaries, who are richly endowed and extremely well lodged. Above the college gate, at the east end, is the exchequer; and at the west, a large hall for entertaining strangers, with the granary and other offices of the convent. The college school, with the master's house, stands on the north side of the cathedral. Between the churchyard and castle is an open area called the *palace green*; at the west end of which stands the shire hall, where the assizes and sessions are held for the county. Hard by is the library built by Bishop Cofin; together with the exchequer raised by Bishop Nevil, in which are kept the offices belonging to the county palatine court. There is an hospital on the east, endowed by Bishop Cofin, and at each end of it are two schools founded by Bishop Langley. On the north, is the castle built by William the Conqueror, and afterwards converted into the bishop's palace, the outward gate of which is at present the county goal.

The city consists of three manors; the bishop's manor, containing the city liberties and the bailey, held of him by the service of castle guard; the manor of the dean and chapter, consisting of the Elvet's cross-gate, south-gate street; and the manor of Gilligate, formerly belonging to the dissolved hospital of Kepyar in this neighbourhood, but granted by Edward VI. to John Cockburn, lord of Ormiston, and late in the possession of John Tempest, Esq.

The bishopric of Durham is deemed the richest bishopric in the kingdom; and the prebends are frequently styled the Golden Prebends of Durham. The diocese contains the whole counties of Durham and Northumberland, except the jurisdiction of Hexham in the latter. It hath also one parish in the county of Cumberland: making in the whole 135 parishes, whereof 87 are impropriate. The see is valued in the king's books at 2821l. 1s. 5¼d. but is said to be worth about ten times that sum annually. The clergy's tenths amount to 385l. 5s. 6½d. It has two archdeacons, viz. of Durham and Northumberland. This see hath given to the church of Rome eight saints and one cardinal; and to the English nation one lord chief justice, five lord chancellors, three lord treasurers, one principal secretary of state, one chancellor to the university of Oxford, and two masters of the rolls.

In the neighbourhood of this city is Nevil's cross, famous for the battle fought in the year 1346, against

David II. king of Scotland, who was defeated and taken prisoner.

DURIO, a genus of plants belonging to the polyadelphia class. See BOTANY Index.

DURNIUM, or DURNOVARIA, a town of the Durotriges in Britain; now *Dorchester*, the capital of Dorsetshire, on the Frome.

DUROBRIVÆ, in *Ancient Geography*, a town of the Catyuechiani in Britain. Now in ruins, which lie on the Nen, between Caster and Dornford, in Northamptonshire, on the borders of Huntingdon.

DUROBRIVÆ, or *Durocobrive*, a town of the Trinobantes, in Britain; whose ruins are situated between Flamstead and Redburn, in Hertfordshire.

DUROBRIVES, 25 miles to the west of Durovernum, or Canterbury; from which it appears to be Rochester town: confirmed by the charter of foundation of the church, in which it is called *Durobrevis*.

DUROCASSES, DUROCASSIUM, DUROCASSÆ, and DUROCASSES, a town of the Carnutes in Gallia Celtica; now Dreux. See DRUIDÆ.

DUROCORNOVIUM, in *Ancient Geography*, a town of Britain; now *Girencester* in Gloucestershire (Camden), called *Corinium* by Ptolemy.

DUROCORTORUM, or DURICORTORA, a town of the Rhemi in Belgica; now *Rheims* in Champagne. E. Long. 4. 8. N. Lat. 49. 20.

DUROIA, in *Botany*; a genus of plants belonging to the hexandria class of plants. See BOTANY Index.

DUROLENUM, a town of the Cantii in Britain; now *Lenham*, in Kent (Camden); *Charing* (Talbot).

DUROLITUM, a town of the Trinobantes; now *Leiton*, on the Ley, in Essex (Camden).

DUROTRIGES, an ancient British nation, seated in that part of the country which is now called *Dorsetshire*. Their name is derived from the two British words *Dur*, "water," and *Trigo*, "to dwell;" and it is no less evident that they got their name from the situation of their country, which lies along the sea coast. It is not very certain whether the Durotriges formed an independent state, under a prince of their own, or were united with their neighbours the Danmonii; as they were reduced by Vespasian under the dominion of the Romans, at the same time, and with the same ease, and never revolted. The peaceable disposition of the inhabitants was probably the reason that the Romans had so few towns, forts, and garrisons, in this pleasant country. Dorchester, its present capital, seems to have been a Roman city of some consideration, though our antiquaries are not agreed about its Roman name. It is most probable, that it was the Durnovaria in the 12th Iter of Antoninus. Many Roman coins have been found at Dorchester; the military way, called *Jeening street*, passed through it; and some vestiges of the ancient stone wall with which it was surrounded, and of the amphitheatre with which it was adorned, are still visible. The country of the Durotriges was included in the Roman province called *Flavia Caesariensis*, and governed by the president of that province, as long as the Romans kept any footing in these parts.

DURY, JOHN, a Scots divine, who travelled much, and laboured with great zeal to reunite the Lutherans with

Dusky
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Duumvirate.

with the Calvinists. His discouragements in this scheme started another still more impracticable; and this was to reunite all Christians by means of a new explication of the Apocalypse, which he published at Francfort in 1675. He enjoyed then a comfortable retreat in the country of Hesse; but the time of his death is unknown: his letter to Peter du Moulin concerning the state of the churches of England, Scotland, and Ireland, was printed at London in 1658, by the care of du Moulin, and is esteemed to be curious.

DUSKY BAY, a bay of the island of New Zealand in the Southern Pacific ocean. The country around is mountainous, and the hills near the sea side are covered with thick forests. It is in S. Lat. 45. 47. and in E. Long. 166. 18.

DUSSELDORF, a city of Westphalia in Germany, and capital of the duchy of Berg. It is situated at the conflux of the river Dussel with the Rhine, in E. Long. 6. 52. N. Lat. 51. 12. It was formerly the residence of the elector palatine, contiguous to whose palace is a celebrated gallery of paintings. Carlstadt, a new town, is nearly completed. It is divided into six regular quarters which open into an extensive square; and from the uniformity of the buildings, exclusive of the new palace and the academy of painting, forms a beautiful addition to the old city. Dusseldorf was taken by the French in 1795. It contains, including the garrison, 18,000 inhabitants.

DUTCHY. See DUCHY.

DUTY, in general, denotes any thing that one is obliged to perform.

DUTY, in a moral sense. See MORAL Philosophy.

DUTY, in polity and commerce, signifies the impost laid on merchandises, at importation or exportation, commonly called the duties of customs; also the taxes of excise, stamp duties, &c. See CUSTOMS, EXCISE, &c.

The principles on which all duties and customs should be laid on foreign merchandises which are imported into these kingdoms, are such as tend to cement a mutual friendship and traffic between one nation and another; and therefore due care should be taken in the laying of them, that they may answer so good an end, and be reciprocal in both countries; they should be so laid as to make the exports of this nation at least equal to our imports from those nations wherewith we trade, so that a balance in money should not be issued out of Great Britain, to pay for the goods and merchandises of other countries: to the end that no greater number of our landholders and manufacturers should be deprived of their revenues arising from the product of the lands, and the labour of the people, by foreign importations, than are maintained by exportations to such countries. These are the national principles on which all our treaties of commerce with other countries ought to be grounded.

DUTY, in the military art, is the exercise of those functions that belong to a soldier: with this distinction, that mounting guard and the like, where there is no enemy directly to be engaged, is called duty; but their marching to meet and fight an enemy is called going on service.

DUUMVIRATE, the office or dignity of the duumviri. See the next article.

The duumvirate lasted till the year of Rome 388, when it was changed into a decemvirate.

DUUMVIRI, in Roman antiquity, a general appellation given to magistrates, commissioners, and officers, where two were joined together in the same functions.

DUUMVIRI *Capitales* were the judges in criminal causes: from their sentence it was lawful to appeal to the people, who only had the power of condemning a citizen to death. These judges were taken from the body of the decuriones; they had great power and authority, were members of the public council, and had two lictors to walk before them.

DUUMVIRI *Municipales*, were two magistrates in some cities of the empire, answering to what the consuls were at Rome: they were chosen out of the body of the decuriones; their office lasted commonly five years, upon which account they were frequently termed *quinquinales magistratus*. Their jurisdiction was of great extent: they had officers who walked before them, carrying a small switch in their hands; and some of them assumed the privilege of having lictors, carrying axes, and the fasces or bundles of rods, before them.

DUUMVIRI *Navales*, were the commissaries of the fleet, first created at the request of M. Decius, tribune of the people, in the time of the war with the Samnites. The duty of their office consisted in giving orders for the fitting of ships, and giving their commissions to the marine officers, &c.

DUUMVIRI *Sacrorum*, were magistrates created by Tarquinius Superbus, for the performance of the sacrifices, and keeping of the sibyls books. They were chosen from among the patricians, and held their office for life; they were exempted from serving in the wars, and from the offices imposed on the other citizens, and without them the oracles of the sibyls could not be consulted.

DUYVELAND, or DIVELAND, one of the islands of Zealand, in the United Provinces, lying eastward of Schonen, from which it is only separated by a narrow channel.

DWAL, in *Heraldry*, the herb nightshade, used by such as blazon with flowers and herbs, instead of metals and colours, for fable or black.

DWARF, in general, an appellation given to things greatly inferior in size to that which is usual in their several kinds: thus there are dwarfs of the human species, dwarf dogs, dwarf trees, &c.

The Romans were passionately fond of dwarfs, whom they called *nani* or *nane*, inasmuch that they often used artificial methods to prevent the growth of boys designed for dwarfs, by enclosing them in boxes, or by the use of tight bandages. Augustus's niece, Julia, was extremely fond of a dwarf called *Sonopas*, who was only two feet and a handbreadth high. We have many other accounts of human dwarfs, but most of them deformed in some way or other besides the smallness of their size. Many relations also concerning dwarfs we must necessarily look upon to be fabulous, as well as those concerning giants. The following history, however, which we have reason to look upon as authentic, is too remarkable not to be acceptable to the generality of our readers.

Jeffery

Duumviri
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Dwarf.

Dwarf.

Jeffery Hudson, the famous English dwarf, was born at Oakham in Rutlandshire in 1619; and about the age of seven or eight, being then but 18 inches high, was retained in the service of the duke of Buckingham, who resided at Burleigh on the Hill. Soon after the marriage of Charles I. the king and queen being entertained at Burleigh, little Jeffery was served up to table in a cold pyc, and presented by the duchess to the queen, who kept him as her dwarf. From 7 years of age till 30, he never grew taller; but after 30, he shot up to three feet nine inches, and there fixed. Jeffery became a considerable part of the entertainment of the court. Sir William Davenant wrote a poem called *Jeffreidos*, on a battle between him and a turkey cock; and in 1638, was published a very small book, called the *New Year's Gift*, presented at court by the lady Parvula to the lord Minimus (commonly called *Little Jeffery*) her majesty's servant, &c. written by Microphilus, with a little print of Jeffery prefixed. Before this period, Jeffery was employed on a negotiation of great importance: he was sent to France to fetch a midwife for the queen; and on his return with this gentlewoman, and her majesty's dancing master, and many rich presents to the queen from her mother Mary de Medicis, he was taken by the Dunkirkers. Jeffery, thus made of consequence, grew to think himself really so. He had borne with little temper the teasing of the courtiers and domestics, and had many squabbles with the king's gigantic porter. At last, being provoked by Mr Crofts, a young gentleman of family, a challenge ensued: and Mr Crofts coming to the rendezvous armed only with a squirt, the little creature was so enraged, that a real duel ensued; and the appointment being on horseback with pistols, to put them more on a level, Jeffery, with the first fire, shot his antagonist dead. This happened in France, whither he had attended his mistress in the troubles. He was again taken prisoner by a Turkish rover, and sold into Barbary. He probably did not remain long in slavery: for at the beginning of the civil war, he was made a captain in the royal army; and in 1644 attended the queen to France, where he remained till the Restoration. At last, upon suspicion of his being privy to the Popish plot, he was taken up in 1682, and confined in the Gatehouse, Westminster, where he ended his life, in the 63d year of his age.

In the Memoirs of the Royal Academy of Sciences, a relation is given by the count de Tressau, of a dwarf called *Bebe*, kept by the late Stanislaus king of Poland, and who died in 1764 at the age of 23, when he measured only 33 inches. At the time of his birth, he measured only between eight and nine inches. Diminutive as were his dimensions, his reasoning faculties were not less scanty; appearing indeed not to have been superior to those of a well-taught pointer: but that the size and strength of the intellectual powers are not affected by the diminutiveness or tenuity of the corporeal organs, is evident from a still more striking instance of littleness, given us by the same nobleman, in the person of Monsieur Borulawski, a Polish gentleman, whom he saw at Luneville, who has since been at Paris, and who at the age of 22 measured only 28 inches. This miniature of a man, considering him only as to his bodily dimensions, appears a giant with regard to his mental powers and attain-

ments. He is described by the count as possessing all the graces of wit, united with a sound judgment and an excellent memory; so that we may with justice say of M. Borulawski, in the words of Seneca, and nearly in the order in which he has used them, "*Posse ingenium fortissimum ac beatissimum sub quolibet corpusculo latere.*" Epist. 66.

Count Borulawski was the son of a Polish nobleman attached to the fortunes of King Stanislaus, who lost his property in consequence of that attachment, and who had six children, three dwarfs, and three well grown. What is singular enough, they were born alternately, a big one and a little one, though both parents were of the common size. The little count's youngest sister was much less than him, but died at the age of 23. The count continued to grow till he was about 30, and has at present attained his 51st year, and the height of three feet two inches. He never experienced any sickness, but lived in a polite and affluent manner under the patronage of a lady, a friend of the family, till love at the age of 41 intruded into his little peaceful bosom, and involved him in matrimony, care, and perplexity. The lady he chose was of his own country, but of French extraction, and the middle size. They have three children, all girls, and none of them likely to be dwarfs. To provide for a family now became an object big with difficulty, requiring all the exertion of his powers (which could promise but little) and his talents, of which music alone afforded any view of profit. He plays extremely well upon the guitar; and by having concerts in several of the principal cities in Germany, he raised temporary supplies. At Vienna he was persuaded to turn his thoughts to England, where it was believed the public curiosity might in a little time benefit him sufficiently to enable him to live independent in so cheap a country as Poland. He was furnished by very respectable friends with recommendations to several of the most distinguished characters in this kingdom, as the duchess of Devonshire, Rutland, &c. &c. whose kind patronage he is not backward to acknowledge. He was advised to let himself be seen as a curiosity, and the price of admission was fixed at a guinea. The number of his visitors, of course, was not very great. After a pretty long stay in London he went to Bath and Bristol; visited Dublin and some other parts of Ireland; whence he returned by way of Liverpool, Manchester, and Birmingham, to London. He also visited Edinburgh and some other towns of Scotland. In every place he acquired a number of friends. In reality, the ease and politeness of his manners and address please no less, than the diminutive, yet elegant, proportions of his figure astonish those who visit him. His person is pleasing and graceful, and his look manly and noble. He speaks French fluently, and English tolerably. He is remarkably lively and cheerful, though fitted for the most serious and rational conversation. Such is this wonderful little man—an object of curiosity really worthy the attention of the philosopher, the man of taste, and the anatomist. His life has been published, written by himself.

DWINA, the name of two large rivers; one of which rises in Lithuania, and, dividing Livonia from Courland, falls into the Baltic sea a little below Riga: the other gives name to the province of Dwina in Russia.

Dwarf,
Dwina.

Dyck
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Dyer.

It runs from south to north, and discharges itself into the White sea a little below Archangel.

DYCK. See VANDYCK.

DYE, in *Architecture*, any square body, as the trunk or notched part of a pedestal: or it is the middle of the pedestal, or that part included between the base and the cornice; so called because it is often made in the form of a cube or dye. See ARCHITECTURE, N^o 61.

DYER, a person who professes the art of dyeing all manner of colours. See DYEING.

DYER, *Sir James*, an eminent English lawyer, chief judge of the court of common pleas in the reign of Queen Elizabeth. He died in 1581; and about 20 years after was published his large collection of Reports, which have been highly esteemed for their succinctness and solidity. He also left other writings behind him relative to his profession.

DYER, *John*, the son of Robert Dyer, Esq. a Welsh solicitor of great capacity, was born in 1700. He passed through Westminster school under the care of Dr Freind, and was then called home to be instructed in his father's profession. His genius, however, led him a different way; for besides his early taste for poetry, having a passion no less strong for the arts of design, he determined to make painting his profession. With this view, having studied a while under his master, he became, as he tells his friend, an itinerant painter, and wandered about South Wales, and the parts adjacent; and about 1727 printed Grongar Hill. Being probably unsatisfied with his own proficiency, he made the tour of Italy; where, besides the usual study of the remains of antiquity, and the works of the great masters, he frequently spent whole days in the country about Rome and Florence, sketching those picturesque prospects with facility and spirit. Images from hence naturally transferred themselves into his poetical compositions: the principal beauties of The Ruins of Rome are perhaps of this kind; and the various landscapes in The Fleece have been particularly admired. On his return to England, he published The Ruins of Rome, 1740; but soon found that he could not relish a town life, nor submit to the assiduity required in his profession. As his turn of mind was rather serious, and his conduct and behaviour always irreproachable, he

was advised by his friends to enter into holy orders; and it is presumed, though his education had not been regular, that he found no difficulty in obtaining them. He was ordained by the bishop of Lincoln, and had a law degree conferred on him.

About the same time he married a lady of Colehill named Enfor; "whose grandmother (says he) was a Shakespeare, descended from a brother of every body's Shakespeare." His ecclesiastical provision was a long time but slender. His first patron, Mr Harper, gave him, in 1741, Calthorp in Leicestershire, of 80l. a-year, on which he lived ten years; and in April 1751 exchanged it for Belchford in Lincolnshire, of 75l. which was given him by Lord-chancellor Hardwicke, on the recommendation of a friend to virtue and the muses. His condition now began to mend. In 1752, Sir John Heathcote gave him Coningsby, of 140l. a-year; and in 1756, when he was LL. B. without any solicitation of his own, obtained for him from the chancellor Kirby-on-Bane, of 110l. In 1757, he published The Fleece, his greatest poetical work; of which Dr Johnson relates this ludicrous story. Dodsley the bookseller was one day mentioning it to a critical visitor, with more expectation of success than the other could easily admit. In the conversation the author's age was asked: and being represented as advanced in life, "He will (said the critic) be buried in woollen." He did not indeed long outlive that publication, nor long enjoy the increase of his preferences; for a consumptive disorder, with which he had long struggled, carried him off at length in 1758.

Mr Dyer's character as a writer has been fixed by three poems, Grongar Hill, The Ruins of Rome, and The Fleece; wherein a poetical imagination perfectly original, a natural simplicity connected with and often productive of the true sublime, and the warmest sentiments of benevolence and virtue, have been universally observed and admired. These pieces were put out separately in his lifetime: but after his death they were collected and published in one volume 8vo, 1761; with a short account of himself prefixed.

DYER'S Weed. See RESEDA, BOTANY and DYEING Index.

Dyer.

D Y E I N G.

Definition. 1. DYEING is the art of communicating a permanent colour to any substance; but it is generally employed in a more limited sense, and is applied to the art of giving colours to wool, silk, cotton or flax, or to thread or cloth fabricated of these substances. To this more limited sense we propose to confine it in the following treatise; and for the dyeing or staining of other substances, as paper, wood, bone, leather, marble, the reader is referred to these articles.

Origin of arts: 2. Among the arts of life there are some which are essential to man even in the earliest period of his history; while others derive their origin from chance, and owe their improvement and perfection to the progress of refinement and luxury. Those arts which are connected with the means of providing food or

shelter are necessary even in the rudest state of man, and are practised with more or less dexterity and success according to the abundance or scantiness of the supply with which he is furnished, and the varieties of climate which he inhabits. But those arts which have been distinguished by the name of *fine arts* can only flourish and arrive at a high degree of perfection in the more luxurious ages of refined society. To this account of the origin and progress of the arts among mankind the art of dyeing forms a remarkable exception. Totally unconnected with the means of providing food to satisfy the urgent calls of hunger, of preparing raiment to secure the body from cold, or of procuring shelter from the storm, this art might at first sight be considered as one of those which exclusively belong

Origin.

belong to an age of luxury. But the history of mankind assigns to its origin a very different period. The art of dyeing seems to be almost co-eval with man. In the rudest state of his existence, his simple and scanty clothing is frequently coloured; and even the naked savage, while he is yet a houseless wanderer in the woods, has discovered the means of staining his body with different colours. And yet the art of dyeing in no respect contributes to relieve the real and primary wants of man. It renders not his raiment warmer, and it serves not to make his lodging more comfortable.

Of dyeing.

3. Whence then is the origin of this art? It depends not like others on the necessities of man, and it exists long before he is acquainted with refinement and luxury. It must therefore be traced to a different source.

We see that the desire of distinction is one of the most active principles in the human mind. This principle operates equally in the breast of the savage in the midst of his naked companions, and in that of the sage and the soldier in polished society. But man rarely rests satisfied with the solid, but frequently less obvious pre-eminence, which superior strength, genius, or learning confers. The proofs of this superiority, can be but seldom exhibited; they are often not generally understood or acknowledged, and therefore cannot always be fairly estimated. He who possesses any of those talents which give him a superiority to others, naturally wishes to be distinguished by certain marks by which he may more uniformly and more directly excite admiration and command respect. He seeks, therefore, for some adventitious circumstances which may be regarded as a kind of symbolical representation of power and greatness; and as they are constantly present to the senses, they make a deeper impression, and keep alive those feelings of admiration which are so gratifying to the vain and ambitious. Dress and its ornaments have been usually employed as external marks of distinction. Hence it is, that the chief or the warrior among rude nations is clothed with a finer and more beautiful skin; his head is decorated with flowers or feathers; or the leaves of the oak, or the laurel, simply adorn his brow. And in the progress of civilization and refinement, the diadem of gold, and the robe of purple or of scarlet, supplant these simpler decorations as characteristics of dignity and power. To increase still more the beauty and variety of those substances which are employed as clothing or as the ornaments of dress, the aid of colours has been called in; and accordingly we find that coloured clothing has been held in high estimation in all ages. This principle, therefore, the desire of distinction, seems to be the natural origin of the art of dyeing. Nature, however, furnishes the model, and may be regarded as the antetype of the art, in the gay plumage with which she has clothed the feathered tribes, and in the splendid colours and infinite variety of shades which are exhibited in her vegetable productions.

History

4. But without indulging farther in these speculations, which are to be considered as subjects of curious investigation, rather than as topics of practical utility, let us now take a short view of the history and progress of this art.

and progress;

We have endeavoured to shew that the beauty of brilliant colours is one of the means of attracting at-

History.

tention, and of acquiring distinction, which mankind in every period of society have employed. Even before the use of clothing has been introduced, the rude inhabitants of savage nations applied them first to their skins. This practice existed among the Britons in the time of Cæsar; and the women of Gaul about the same period stained themselves of a brown olive colour. At this day, it is still the practice of many of the savage tribes of America, as well as of the natives of the South sea islands. But when mankind had made some progress in arts and civilization, and had begun to wear clothing, the colours which they admired were afterwards communicated to their garments. The art of dyeing, therefore, though in a rude and imperfect state, is indisputably of great antiquity; and indeed, considering its nature and origin, this might have been expected.

5. India, the nursery of the arts and sciences, which in India; were afterwards improved and brought to perfection among other nations, seems to have given birth to the art of dyeing; and it would appear that the knowledge of dyeing cotton had advanced as far in the time of Alexander the Great as at the present time, so stationary have the arts become in that country. The beautiful colours of the Indian linens would naturally lead to the supposition that the art had reached a very high degree of perfection; but it is known that the Indian processes are so tedious, complicated and imperfect, that they would be totally impracticable in any other country.

6. It was not till the time of Alexander the Great among the Greeks, that the art of dyeing cotton and linen, which had gradually spread from the east to the west, was known in Europe. The Greeks, however, as appears from many passages in the Iliad and Odyssæy, were acquainted with the art of dyeing purple in the time of Homer. And it is supposed that they derived their knowledge of it from the Phenicians, a people who were very early celebrated for the art of dyeing. But their art seems to have been confined to wool; silk, indeed, was at that time unknown, and linen was usually worn white.

7. Dyeing and coloured stuffs are frequently mentioned in the sacred writings. It would appear that the art had made considerable progress in the time of the patriarchs, from what is mentioned in the book of Genesis. The dyed stuffs which are described in the book of Exodus were purchased by the Jews from the Phenicians.

8. The Egyptians according to Pliny, practised a the Egyptians kind of topical dyeing or calico-printing, which from his general description seems to have been similar to that which was found many ages after to exist in different parts of India, and was from thence introduced into the different countries of Europe. He says, the Egyptians began by painting on white cloths, which were no doubt of linen or cotton, with certain drugs which were themselves colourless, but possessed the property of absorbing colouring substances. These cloths were afterwards immersed in a heated dyeing liquor which was of one uniform colour, and although they were formerly colourless, yet when they were taken out, they were found to be dyed of different colours, according to the different qualities of the substances which had been applied to their different parts; and these colours could not afterwards be discharged by

History. by washing*. This art was probably borrowed from the natives of India.

* *Plin. lib.*

9. The Tyrian purple, so celebrated among the ancients, was probably from the name discovered at Tyre, and perhaps contributed not a little to the opulence of that city. The liquor which was employed in dyeing the purple was extracted from two kinds of shell-fish, one of which, the larger, was called the *purple*, and the other was a species of whelk. Each of these species was subdivided into different varieties, and were otherwise distinguished, according to the places where they were found, and as they yielded more or less of a beautiful colour. It is in a vessel in the throat of the fish that the colouring liquor is found. Each fish only afforded a single drop. When a certain quantity of the liquor had been obtained, it was mixed with a proportion of common salt, macerated together for three days, and five times the quantity of water was added. The mixture being kept in a moderate heat, the animal parts which happened to be mixed with it, separated and rose to the surface. At the end of ten days, when these operations were finished, a piece of white wool was immersed, by which means they ascertained whether the liquor had acquired the proper shade.

Preparation of the liquor.

Of the stuff. Various processes were followed to prepare the stuff to receive the dye. By some it was immersed in lime water, and by others it was prepared with a kind of *fucus*, which acted as a mordant to give it a more fixed colour. Alkanet was used by some for the same purpose.

The liquor of the whelk did not alone yield a durable colour. The liquor from the other shell-fish served to increase its brightness; and thus two operations were in use to communicate this colour. A first dye was given by the liquor of the purple, and a second by that of the whelk; from which it was called by Pliny *purpura dibappa*, or purple twice dipped.

Permanency.

10. Some kinds of purple have been found to possess great durability. Plutarch, in his life of Alexander the Great, mentions that the Greeks discovered in the treasury of the king of Persia a great quantity of purple which was 190 years old, and still retained all its beauty.

High price.

11. The small quantity of liquor which could be obtained from each shell-fish, and the tedious process in its preparation and application to the stuffs, raised the price of purple so high, that in the time of Augustus a pound of wool of the Tyrian purple dye, could not be purchased for one thousand denarii, equal to about 36l. sterling.

Worn by the Romans.

12. The purple, which has been almost everywhere a mark of distinction attached to high birth and dignity, was worn by those who held the first offices in Rome. The emperors at last reserved to themselves the right of wearing it, and prohibited all others from using it on pain of death.

Still used in dyeing.

13. The substances which have been discovered and used in dyeing by the moderns, and the superiority which they have obtained in many colours, have superseded the use of the purple of the ancients. The shell-fish from which the liquor is extracted, is supposed to be now as abundant as ever. Similar shell-fish have been found near Nicoya, a small Spanish town in South America, and they are at present used for dye-

ing cotton on the coasts of Guaiquil and Guatimala.

History.

14. In the year 1683, Mr Cole of Bristol discovered, on the coast of England, the shell-fish which yields the purple liquor. The liquor was contained in a white vein, lying transversely in a little furrow or cleft, next to the head of the fish. He found by experiment, that letters or marks, made with this white liquor, appeared when first exposed to the air of a green colour. When exposed to the sun, it became of a deeper green, afterwards of a purplish red, and, by the continued action of the sun's rays, of a deep purple red. Mr Cole sent some of the first linen marked with this liquor to Dr Plot, one of the secretaries of the Royal Society, in the year 1684. It was soon after shown to King Charles II. who greatly admired it, and desired that some of the shell-fish might be collected and brought to town, that he might have an opportunity of seeing the liquor applied, and the successive changes of colour through which it passed.

The shell fish found on the coasts of England

A species of this shell-fish was also found by Plumier at the Antilles; and Reaumur made a number of experiments on whelks, which were collected on the coast of Poitou. Duhamel found the same shell-fish in great abundance on the coast of Provence. The experiments of these philosophers on this liquor afforded the same result as those of Mr Cole. They observed that, although at first white, it becomes by the action of light, of a yellowish green, then deepens to a kind of blue, which is afterwards changed to a red. In less than five minutes, the latter is converted into a fine deep purple, having all the characters of the purple of the ancients.

and of France.

Eudocia Macrembolitissa, daughter of the emperor Constantine VIII. who lived in the 11th century, while the knowledge and practice of dyeing that colour for the use and at the expence of the Greek emperors still subsisted, has given a minute account of the mode of catching the shell-fish which produced the purple. Of this operation she herself, it would appear, was an eye-witness. As it was applied at that time, it did not acquire its full lustre and perfection of colour, till it had been exposed to the action of the sun's rays.

15. A liquor which yields the same colour, and has otherwise similar properties, is found in different parts of the world. Abundance of purple snails, it is said, are found in the islands opposite to Batavia. They are boiled and eaten by the Chinese, who polish the shells, and pick out of the middle of the snail a purple-coloured substance, which they use in colouring and making red ink. Dr Peyssonel describes what he calls the naked snail, which is found in the seas of the Antilles, and affords a liquor of a beautiful purple colour. This liquor is thrown out by the animal when it is disturbed, in the same way as the cuttle-fish discharges the ink. The liquor of the snail is naturally of a purple colour, without the application of light*. Two shell-fishes, which yield a similar colouring liquor, are described by Dr Brown in his history of Jamaica. The one, he says, is frequent in the American seas, and emits on being touched a considerable quantity of viscid purple liquor, which thickens and colours water. The other is called the *purple ocean shell*, and yields a beautiful purple liquor, which seems to resemble the former. But investigations concern-

Purple liquor found in snails.

* *Phil. Transf. vol. 1.*

History. ing the nature and application of the purple dye from shell-fish are now to be considered merely as subjects of curiosity; because the colours which are obtained by the processes of the moderns are more beautiful, and far less expensive.

The arts lost. 16. In the 5th century, during the irruption of the northern barbarians, the arts, which had been encouraged and protected by the Romans, were lost amidst the devastations of the western empire. A few, indeed, were preserved in Italy, but they were in a state of decay; and otherwise no traces remained of knowledge, industry, or humanity. A manuscript of the 8th century is quoted by Muratori, which contains a description of some dyes, principally for skins, as well as some processes connected with other arts; but from the barbarous Latin, in which it is written, no distinct notion can be formed of the nature of these processes. The arts met with a better fate in the East, where they were protected and encouraged. So late as the 12th century, articles of luxury were procured by some of the great from eastern countries.

Are revived in Italy. 17. During the time of the crusades, Venice and other cities of Italy became rich and powerful, first by supplying with provisions the Europeans who engaged in these frantic and destructive expeditions, and afterwards by establishing an intercourse with the Grecian empire. By these means the arts, which had been preserved among the Greeks, were established in Italy. In the year 1338, the city of Florence contained 200 manufacturers, who are said to have produced from 70,000 to 80,000 pieces of cloth. In the year 1300, archil was accidentally discovered by a Florentine merchant. Observing that urine produced a fine colour on certain species of moss, he made experiments, and from these learned the mode of preparing this substance. The discovery was long kept secret. His posterity, a branch of which, it is said, still exists, have retained the appellation of *Rucellai*, from the Spanish word, which signifies that kind of moss.

Dyeing revived in Italy. 18. The arts, after being revived in Italy, continued for a long time to be cultivated and improved with increasing success. Along with these, the art of dyeing made considerable progress. The first collection of the processes employed in this art appeared at Venice in the year 1429. It was entitled *Mariogola del' arte de i tentori*. To render this description more useful and extensive, a person of the name of Giovanni Ventura Rosetti, travelled through different parts of Italy and the neighbouring countries, where the arts had begun to flourish, that he might acquire a knowledge of the processes which were employed by different dyers. These were collected and published in 1548, under the title of *Plictho*. This treatise has been by some considered as the leading step towards the perfection which the art of dyeing has attained; for it is the first in which the different processes are collected. No mention is made, either of cochineal or of indigo, so that it would appear, these dyes were either not known, or not employed in Italy previous to the time in which it was written.

19. Italy, but especially Venice, for a long time almost exclusively possessed the art of dyeing, and this seems to have contributed greatly to the prosperity of the manufactures and commerce which the Italian states long enjoyed. By degrees it was introduced into

France, Holland, and Britain. The process for dyeing the true scarlet had been communicated to a person of the name of Gobelin, who established a manufactory near Paris, which still bears his name. At the time, this was considered so rash an enterprise, that it received the name of *Gobelin's folly*; but such was his success, and such the ignorance of the times, that it was supposed he derived his knowledge of the processes he employed, from the devil!

20. The discovery of America brought the knowledge of the cochineal insect into Europe. The Spaniards observing that the Mexicans employed it in painting their houses, and in dyeing cotton, transmitted an account of the beauty of that colour to their government, whose attention was afterwards directed to encourage and promote the increase of the valuable insect from which it is obtained. The discovery of cochineal was soon followed by that of the process for dyeing scarlet, by means of a solution of tin. For this discovery we are indebted to a German chemist of the name of Kuster, or Kusler, who carried the secret to London in the year 1643. Gluck or Kloeck, a Flemish painter, having obtained possession of this secret, communicated it to Gobelin, and afterwards the knowledge of it spread throughout all Europe. The use of Indigo first indigo, which was a great acquisition to the art of used. dyeing, was more slowly established than that of cochineal. In the reign of Queen Elizabeth, the use of this substance, as well as of logwood, was strictly prohibited in England, and if found in any manufactory, was ordered to be burned. This, as must appear at the present time, very strange prohibition, was not withdrawn till the reign of Charles II. It met with the same fate in Saxony. In the edict in which the use of it is forbidden, it is said to be a corrosive colour, and called *food for the devil!*

21. In France also, some prejudice was entertained against it, and although it was not entirely prohibited, the use of it was limited to a certain proportion. The reasons on which this prejudice was founded, on a narrow view of the principles of political economy, might even in the present day be admitted as specious, if not satisfactory. It was held out by those who dyed blue, and were accustomed to use woad, that the introduction of indigo would supersede the use of these substances; and it was represented that their consumption would be destroyed, and the encouragement for the productions of the country diminished.

22. Previous to the administration of the celebrated Colbert, the industry and arts of France long remained in a state of languor and decay. By the wise measures which were adopted by this minister, she soon rose to distinction among the nations of Europe, and in a short time saw her commerce and manufactures greatly extended. He invited the most skillful artists, encouraged and rewarded their talents, and thus established many arts and manufactures. Among these, the art of dyeing received its share of attention. In the year 1672, he published a table of instructions for dyeing, which, although it contains many useless and improper restrictions, is on many accounts worthy of attention, and particularly the reasons which he has given for considering it as an object of consequence. As a proof of this, we may refer to the following extract

History. tract from the instructions: "If, it is said, the manufactories of silk, wool, and thread, are to be reckoned among those which most contribute to the support of commerce; dyeing, which gives them that striking variety of colour, by which they resemble what is most beautiful in nature, may be considered as the soul of them, without which a body could scarcely exist.

"Wool and silk, the natural colour of which rather indicates the rudeness of former ages, than the genius and improvement of the present, would be in no great request, if the art of dyeing did not furnish attractions which recommend them, even to the most barbarous nations. All visible objects are distinguished and recommended by colours; but for the purposes of commerce, it is not only necessary that they should be beautiful, but that they should be good, and that their duration should equal that of the materials which they adorn."

23. But notwithstanding these just and liberal views, and many useful regulations, which were published for instruction in the art of dyeing, the restrictions imposed upon it, as we have already observed, were, from mistaken views improper and injurious, because in this, as in every other art, these restraints infallibly operate as checks on industry and improvement. The effects of these prohibitions, however, were moderated by the facility with which they might be eluded, and by the rewards bestowed on those whose experiments promoted the progress of the art, and whose discoveries being afterwards published, served to modify the existing regulations. The effects of these prohibitions, too, were in a great measure obviated, by the judicious appointment of men of science, to whom the superintendance of arts and manufactures was entrusted. By their prudent exertions, and by the still more efficacious means of the diffusion of knowledge, this art, as well as others, has been encouraged and improved.

24. The French government continued to direct its attention to promote the plan which was thus begun by Colbert, and many eminent chemists have been employed to superintend and improve the processes of the art of dyeing. Dufay, Hellot, Macquer, and Berthollet, have been successively charged with the care of this department; and to their labours and exertions we are indebted for many valuable acquisitions which have been made in the art of dyeing, during the 18th century. Dufay was the first who entertained just views of the nature of colouring matters, and the powers by which they adhere. In the examination of certain processes he discovered great sagacity, and established the surest means which the state of knowledge at the time afforded, to ascertain the durability of a colour. Under his direction a new table of instructions, which superseded that of Colbert, was published in 1737. Hellot, who succeeded him, published in 1740 a methodical description of the processes for dyeing wool; and this treatise may be considered, even at the present day, as one of the best systems on the subject. Macquer in 1763 published a treatise on dyeing silk, in which he has given an accurate description of the processes, has discovered the combinations of the colouring principle of Prussian blue, and has endeavoured to make an application of it to the art of dyeing. Macquer died in 1784, and was succeeded in that de-

partment by the celebrated Berthollet, to whom was intrusted the superintendance of the arts connected with chemistry, and particularly that of dyeing. To his being placed in this department, we are probably indebted for the excellent work which he has published on this subject, and for different memoirs which have appeared in different periodical works. To these we must acknowledge ourselves greatly indebted for much of the information both of the theory and practice of this art, which we propose to lay before our readers in the following treatise. He has endeavoured, he observes, to bring into one point of view the processes of industry, and the operations of nature; to take his situation between the philosopher and the artist. To the first he has shown, where it is that the phenomena of the art of dyeing and those of nature meet, and what are the principles which their discoveries have established. When these comprehensive views, we may add, are completed, the art of dyeing may be considered as perfect.

25. The art of dyeing has been long successfully practised in Britain, although little has been done towards the investigation of the theory on which it depends. At an early period of the Royal Society, it attracted the attention of some of its members; but nothing was published on the subject. Many years afterwards, some useful observations on dyeing were published by Dr Lewis, but these were limited to a very few processes. The only work with which the British dyers were acquainted, till within these few years, was a translation of the treatise of Hellot, mentioned above.

26. But since the progress of chemical science has opened so wide a field of investigation; and since all the essential processes in the art of dyeing are to be considered as purely chemical, the attention of philosophers has been greatly occupied with its investigation and improvement. By their experiments and observations a great deal of new information has been accumulated, and much new light has been thrown upon the art.

27. The only treatise which has appeared in Sweden on this subject, is that of Scheffer, accompanied with notes by the celebrated Bergman. In Germany, experiments in different processes of dyeing have been published by Beckmann, Poerner, Vogler, and Francheville. The authors of the different treatises in France on this subject, which have greatly contributed to the improvement of the art, are D'Ambourney, D'Apligny, Hauffmann, Chaptal, and Berthollet, whose works we have already mentioned. In Britain, two very valuable essays by Delaval and Henry have appeared; and to these we may add, the excellent treatise on the Philosophy of Permanent Colours, by Dr Bancroft.

In the following treatise, we propose to give a pretty full view, both of the theory and practice of dyeing. This subject naturally divides itself into two parts. In the first, we shall treat of dyeing in general, or of those departments of physical science, the knowledge and application of which may be considered as constituting the theory of the art. In the second part, we shall take a view of the different processes which are employed in communicating colours to different stuffs, or, in general terms, the practice of dyeing.

Restrictions.

History.

State of, in Britain.

Improved by chemistry.

Authors on dyeing.

PART I. OF DYEING IN GENERAL.

Of Colours,
&c.

UNDER this head we propose to take a general view of what may be regarded as the theory of dyeing; and investigate those principles of physical science which are immediately connected with the art, and by the application of which the phenomena of the art can only be accounted for, or satisfactorily explained. With this view we shall treat the subjects which come under this part in the four following chapters. In the *first*, we shall consider the nature of colours and colouring matters; in the *second*, we shall treat of the nature and operation of mordants; the *third* will include an account of the properties of the substances to which colours are communicated; and, in the *fourth*, we shall add some general observations on the operations of dyeing.

CHAP. I. Of Colours and Colouring Matters.

28. THE physical theory of light and vision properly belongs to optics, and the changes produced by the action of light on different substances, are detailed under chemistry. In this place, therefore, we shall only make a few observations on the nature of light and colours, which are more immediately connected with the subject under consideration. For our knowledge of light and vision we are indebted to Sir Isaac Newton. It was first demonstrated by that sagacious philosopher, that the light of the sun is composed of seven rays which have different powers of refrangibility. The colours of these seven rays are red, orange, yellow, green, blue, indigo, violet. When these rays are separated by the prism, as they run gradually into each other, according to their different degrees of refrangibility, they produce every various shade of colour. The violet ray is the most refracted, the indigo, next, and so on to the red, which is the least refracted of all the rays. The same rays of light also differ in their degrees of reflexibility. All known colours, and their different shades, are produced by mixing together the different rays. Thus, for instance, by mixing together red and yellow, an orange colour is obtained; yellow and blue give a green colour; and blue and red, according to their different proportions, produce a violet, purple, &c. and thus, as Sir Isaac Newton has observed, the variety of colours depends on the composition of light; for if the sun's light consisted but of one sort of rays, there would be but one colour.

Nature of
light.Nature of
colours.

29. Colours in an object, the same philosopher farther observes, are nothing but a disposition to reflect this or that sort of rays more copiously than the rest; in the rays they are nothing but their dispositions to propagate this or that motion into the *sensorium*; and in the *sensorium* they are sensations of those motions under the forms of colours. In their power of reflecting light, bodies, it is well known, differ greatly from each other. Some bodies reflect it in such quantities, that the eye cannot bear it. Such, for instance, are metallic substances highly polished. Others again, as dark-coloured or black substances, reflect it very feebly. It is found in general, that the quantity of

light reflected from a body depends greatly on the smoothness of its surface. On this account bodies which have the smoothest surface, or are most highly polished, are the brightest: that is, they reflect the greatest quantity of light. But there is also a very great difference among bodies, in the nature or quality of the rays of light which they have the power of reflecting. When all the rays of light are equally reflected by any body, that body is said to be white; but when a very few rays only are reflected from a body, that body is said to be black, because the greater number of the rays being absorbed by the body, the few that are reflected make a very faint impression on the organ of vision. A body which has the power of reflecting the red rays only, is said to be red; a body which reflects the blue rays, is said to be blue; the body reflecting only the yellow rays, is yellow: but when any two of these rays are reflected in combination with each other, a different colour is produced; as for instance, the red and the yellow rays afford an orange colour; and as we have already observed, the various shades of colour exhibited by different bodies, depend on the different combinations of rays reflected from their surface. Thus it appears, that colour in bodies is to be ascribed to their disposition of absorbing certain rays, and reflecting the rest. In opaque bodies, it is owing to their disposition to absorb some rays, and to reflect the rest. In transparent bodies, it is owing to their disposition to absorb certain rays, and to transmit the rest.

Of Colours,
&c.

30. Newton has demonstrated, that transparent bodies reflect the rays of one colour, and transmit those of another, according to the difference of their thickness or density. He observes that transparent substances, such as glass, water, air, &c. when made very thin by being blown into bubbles, or otherwise formed into plates, exhibit various colours, according to their various thinness; although at a greater thickness they appear very clear and colourless. His method of conducting these experiments was the following. He took two object-glasses, the one a plano-convex for a 14 feet telescope, and the other a large, double convex, for one of about 50 feet; and upon this laying the other with its plain side downwards, he pressed them slowly together, to make the colours successively emerge in the middle of the circles, and then slowly lifted the upper glass from the lower, to make them successively vanish again, in the same place. The colour which, by pressing the glasses together, emerged last in the middle of the other colours, would, upon its first appearance, look like a circle of a colour almost uniform from the circumference to the centre; and by compressing the glasses still more, grow continually broader, until a new colour emerged in its centre, and thereby it became a ring, encompassing that new colour; and by compressing the glasses still more, the diameter of this ring would increase, until another new colour emerged in the centre of the last, and so on, until a third, a fourth, a fifth, and other following new colours successively emerged there, and became

Cause of
colours in-
vestigated.

Of Colours, &c. came rings, encompassing the innermost colour, the last of which was the black spot. And on the contrary, by lifting up the upper glass from the lower, the diameter of the rings would decrease, and the breadth of their orbit increase, until their colours reached successively to the centre, and then, as they were of considerable breadth, he could more easily discern their species than before. By proceeding in this manner, he produced 25 different-coloured, circular rings, which he divided into seven orders, because the same colour was always repeated. They are reckoned from the central colour, which was always black, in the following order :

1. Blue, white, yellow, and red.
2. Violet, blue, green, yellow, red.
3. Purple, blue, green, yellow, red.
4. Green, red.
5. Greenish blue, and red.
6. Greenish blue, and pale red.
7. Greenish blue and reddish white.

But in the three last orders the colours were very indistinct, and terminated in perfect whiteness.

31. These colours were occasioned by the thin films of air which were included between the two glasses. For he found, he observes, by looking through the two object-glasses, that the interjacent air exhibited rings of different colours, as well by transmitting light, as by reflecting it. The film of air varies in thickness from the centre of the glasses to the circumference. In the centre where the film is thinnest the colour is black; and the other colours from the centre to the circumference are produced in their order by the gradual increase of the thickness of the film.

32. These experiments were repeated on films of water and also of glass; and it was found that the thickness of the films in these cases, reflecting any particular colour, was diminished, and this diminution appeared to be proportional to the density of the reflecting film. As there is no method of measuring the distance between the two glasses where the black spot appears, it is impossible to ascertain the absolute thickness of the films; but it certainly does not exceed the 1000th part of an inch. Newton, however, endeavoured by a mathematical investigation to measure the relative thickness of air, water, and glass, at which the several orders of colour appear. The following table exhibits the relative thickness of air which produced the coloured circles.

1. Black	1	green	25 $\frac{1}{2}$
blue	2 $\frac{2}{3}$	yellow	27 $\frac{1}{2}$
white	5 $\frac{1}{3}$	red	31
yellow	7 $\frac{1}{3}$	4. Green	35
red	8 $\frac{1}{2}$	red	40 $\frac{1}{2}$
2. Violet	11 $\frac{1}{3}$	5. Green-blue	46
blue	14	red	52 $\frac{1}{2}$
green	15 $\frac{1}{3}$	6. Green-blue	58 $\frac{1}{2}$
yellow	16 $\frac{2}{3}$	red	65
red	18 $\frac{1}{3}$	7. Green-blue	71
3. Purple	21	reddish-white	77
blue	23 $\frac{2}{3}$		

Newton's theory.

33. The conclusion which Newton drew from these experiments was, that the power or disposition of the

particles of bodies to reflect or transmit particular rays, depended on the size and density of these particles; and proceeding on this theory he attempted to measure the size, or at least the thickness, of the particles of bodies, from the colours which they reflected or transmitted.

34. This subject was still farther investigated by Mr Delaval. In the year 1765, he published, in the Philosophical Transactions, an account of his "Experiments and Observations on the agreement between the specific gravities of the several metals, and their colours, when united to glass, as well as of their other preparations". In this paper, Mr Delaval treats of the difference of density, and of the colours produced by that cause; and yet he considers colours as arising from a difference of the size of the colouring particles. For since the particles of a coloured substance being separated they are removed to a greater distance from each other, and thus occupy a greater space, that substance must undergo a diminution of its specific gravity, while at the same time the size of its particles is smaller. According to Sir Isaac Newton, the refractive and reflective powers of bodies are nearly proportional to their densities, and the least refrangible rays require the greatest power to reflect them. From this, Mr Delaval supposed, that denser substances, by their greater reflective power, ought in similar circumstances to reflect the less refrangible rays; and that substances of less density should reflect rays proportionably more refrangible, and therefore appear of several colours in the order of their density. The densest bodies, he supposes, are the red; the next in density are the orange; the next are the yellow; and so on, according to the order of the refrangibility of the different rays. Mr Delaval some time after extended his researches to animal and vegetable substances, and endeavoured to establish the theory of Newton by a great number of experiments, an account of which he published in an essay entitled, an Experimental Inquiry into the cause of the Permanent Colours of Opaque Bodies †.

35. According to the theory of Newton, with the exception of combustible bodies which follow a different law; colour depends solely upon the size of the integrant particles of bodies, in which the density is the same; and upon the size and density of all bodies taken together. But the evidence for the truth of this theory can only be derived from experiment. Newton adduced but a small number of experiments in support of it. The experiments of Mr Delaval were more numerous and more varied; but they were made long before the important facts in chemical science, which have completely changed the views and opinions of philosophers, with regard to the nature and action of the constituent principles of bodies, were discovered; so that it is now universally acknowledged that they proceeded on a false hypothesis. It was supposed that alkalis enlarge, and that acids diminish, the size of the particles of bodies on which they act, without inducing any other change. This opinion, in the present state of chemical knowledge, will not readily find a place.

36. But if this theory were true, every change in the size of the integrant particles of bodies would occasion a different colour in these particles; and in all these changes, if they correspond with the theory, the

Of Colours, &c.

Supported by Delaval.

† Manchester Mem. ii 131.

Of Colours, &c. the colour produced must be precisely that colour which is the result of a diminution or increase of size.

Inconsistent with the facts.

37. But there is no such coincidence with the facts. The magnitude of the integrant particles of bodies cannot be ascertained; and there is no method by which the increase or diminution of the particles in the changes which they undergo can be measured; but the addition or abstraction of matter to particles can in many cases be distinctly determined. In the change which takes place on gold by the process of oxidation, that is, by combining with oxygen, an integrant particle of the oxide is larger than an integrant particle of gold in the metallic state; for it has united with one particle at least of oxygen. But if the theory were true, there should be a difference of colour between the oxide and the gold, which is not the case; for they are both yellow. In the amalgam of silver, a compound of silver and mercury, the colour is white, which is the colour of both metals; and yet an integrant particle of the compound must be larger than an integrant particle of either the mercury or the silver,

The same colours reflected in different orders.
† *Phil. of Perm. Col.*
7.

38. But the same colour, it may be said, is reflected in the different orders of colours, in which the particles are of very different sizes. This circumstance, as Dr Bancroft † justly observes, proves incontestably, that although thickness or size of the particles may be one, it cannot be the only cause of the repeated variation of colour. It follows, therefore, that there must be some other cause. But besides, the most common colour remaining after an increase of the size of the integrant particles of bodies is white; and yet this colour does not appear in any of the orders except the first; its permanency, therefore, cannot be accounted for in any way which is at all compatible with this theory.

Colours of metals independent of density.

39. And in the changes of colour which are observed to follow the increase or diminution of the sizes of the particles of bodies, the order of these changes is not such as will correspond with the theory. It is obvious that the colours of metallic substances do not depend on their density. The colour of platina, the densest body known, is not red, as it should be, according to the theory, but white; in this respect resembling tin, one of the metals which has the least density, and little more than one third that of the former.

Chemical changes affect the colour.

40. The size of the particles of the green oxide of iron must be increased when they enter into combination with the prussic acid. But the colour of the compound is white; and, according to the theory, it should be accompanied with a diminution of the size of the particles, which is not the case. The colour of indigo is naturally green. The addition of oxygen, which must increase the size of the particles, converts it to a blue colour. This, then, is another case incompatible with the Newtonian theory. And from these facts it must appear, that this theory is deficient in accounting for the reflection or transmission of particular rays, and the absorption of the rest. It is not sufficient for the explanation of the causes of colour. The smallness and the density of particles are not the only circumstances which ought to be taken into the account, in explaining the cause of colour in bodies. It appears, from Newton's own experiments, that we must have recourse to the chemical properties of bodies, which have a considerable influence on their colour. It cannot be sup-

posed, that a force which acts powerfully in refracting the rays, will not also have great influence in their reflection.

Of Colours, &c.

41. Numerous facts tend to prove that bodies have a particular affinity for the rays of light; and indeed it is entirely upon these affinities that the phenomena of light depend. Coloured bodies have a certain affinity for some of the rays of light. Those rays for which any body has a strong affinity, are absorbed by it, and retained; while the other rays, for which it has no affinity, are either reflected or transmitted, according to the nature of the body, as it may be opaque or transparent, and according to the direction of the incident ray. A red body, for instance, reflects only the red rays, because it has an affinity for all the other rays, excepting the red. It therefore absorbs them, if it be an opaque body, or transmits them if it be transparent. A green body absorbs all the rays excepting the green; a black body has a strong affinity for all the rays, and therefore they are all absorbed; while a white body, which has little affinity for any of the rays, if it be opaque, reflects, or if transparent, transmits them all.

Affinity of bodies for certain rays the cause of colour.

42. The differences which exist between the particles of bodies, may be conceived to be differences in size, density, and figure; and changes in these circumstances may account for all the varieties of affinity. If then affinity depends upon these circumstances, and if the colour of bodies is to be ascribed to the affinity between their particles and the different rays of light, the cause of the colour of bodies, it seems obvious, is capable of being accounted for from the size, density, and figure of their particles. It cannot be accounted for, according to the theories of Newton and Delaval, solely on the variations in size and density.

Changes of colour owing to differences in size, &c. of the particles,

43. If then the colour of bodies depends upon their affinity for light, and every body have some colour in consequence of the absorption of particular rays which it retains, and the reflection or transmission of all the rest, it is obvious, that it must continue of its first colour without suffering any change, till it is either saturated with the particular rays which it absorbs, or till the particles of the body have undergone some change by decomposition or combination with new substances. As many substances have been long exposed to the action of light without their colours being changed, there is no certain evidence that the changes in the colours of bodies are to be ascribed to the first cause. The light which is absorbed either escapes unchanged or under some unknown form. But the action of the second cause which has been mentioned, may be traced in almost all cases where alterations of the colours of bodies have been observed. We may take as an example of this change of colour the green oxide of iron, which readily combines with oxygen, and is converted into the red oxide. The latter oxide, in combination with the gallic acid, assumes a black colour, and with prussic acid a blue colour. In these cases, where there is a change in the composition of the body, accompanied with a change of colour, the cause of this change is obvious; because every change in the composition of a body produces some change in the affinity, and therefore in the size, density, and figure of the particles; and it is not improbable in all of these circumstances together. But if the affinity of any body

and to new combinations.

Of Colours, &c. dy for other substances has undergone a change, it is natural to suppose that its affinity for light is also in some degree altered. This, however, although it happens in many instances, is not constant and uniform; because it may happen, that the changes in the size, density, or figure of the particles of the body, are such as to render it capable of combining with, or reflecting, the same rays of light as before it suffered any chemical change. Thus it must appear, that in most cases, the permanency of the colours of bodies will depend greatly on the permanency of their composition, and on the force of the affinities which they have for other bodies, to whose action they may be exposed.

Coloured matters do not reflect light.

44. In the ingenious experiments of Mr Delaval, which we have already alluded to, he has shown that coloured matters do not reflect any light. "Reflective media, (he observes), act indiscriminately on all the different rays. It does not appear from the optical phenomena which have hitherto been observed, that nature affords any kind of matter endowed with a power of reflecting one sort of rays more copiously than the other sorts; consequently no reflective substances are capable of separating the differently refrangible rays, and thereby producing colours. There are several experiments and observations in Sir Isaac Newton's optics, from which it might have been inferred, that coloured light is not reflected from coloured matter, but from white or colourless matter only. Although that great philosopher supposes that all coloured bodies reflect the rays of their own colours more copiously than the rest, yet he observes that they do not reflect the light of their own colours so copiously as white bodies do. If red-lead, for instance, and white paper, be placed in the red light of the coloured spectrum, made in a dark chamber by the refraction of a prism, the paper will appear more lucid than the red lead, and therefore reflects the red-making rays more copiously than red lead doth*.

* Optics, book i. part ii. prop. 5.

"If it be supposed that the red particles of the minium reflect the red rays more strongly than the rest, what reason can be assigned why minium should not exhibit the red rays as vividly as white paper, which acts indifferently on all the rays? But if it be considered that in opaque coloured bodies, the rays which are reflected from white reflective matter pass back through the transparent coloured media with which the reflective matter is covered, it will evidently appear why the coloured light reflected from white paper is more copious and bright than that which is exhibited by red lead.

"A considerable part of the incident light is lost in passing through transparent coloured media; therefore the light reflected immediately from the white paper, must be more copious and lucid than that which has

undergone a diminution in its passage to and from the reflective particles of the opaque coloured body, through the transparent coloured medium. Of Colours, &c.

"When a small portion of colouring matter is mixed with a colourless medium, the mass appears tinged with colour; but when a great quantity of colouring matter is added, the mass exhibits no colour, but appears black; therefore, to attribute to colouring matter a reflective power, is to advance an inexplicable and contradictory proposition; for it is asserting that in proportion as more reflective colouring matter is opposed to the incident light, less colour is reflected; and that when the quantity of colouring matter is very great, no colour at all is reflected, but blackness is thereby produced."

45. "From these arguments it might have been shewn, that the reflective power does not exist in colouring matter, but in opaque white substances only. Nevertheless, in this disquisition, I have not entirely relied on arguments drawn from a few known and obvious appearances, but have endeavoured, by numerous experiments, to ascertain the cause of the colours of natural, as well as artificial bodies, and the manner in which they are produced. Proved.

46. "M. Euler observed, that the colours of bodies are not produced by reflection. He supposes that the coloured rays are emitted by the colorific particles. This hypothesis, however, is not agreeable to experiment; for as the colouring matter acts upon light by transmission only, it is evident that bodies do not appear coloured, either by reflecting or emitting the rays. I have not attended to any other hypotheses which are unsupported by experiments. Sir Isaac Newton, and I believe all later philosophers, except M. Euler, have attributed to colouring matter a reflective power; and the artists whose works depend upon the preparation and use of colouring materials, seem in general to have adopted the same theory. As an instance of this agreement, I have cited, from M. Hellot, one of the most skilful and intelligent authors, who have treated of the art of dyeing, a passage which comprises his opinion respecting the action of the tinging particles on the rays of light (A). All the other writers on the same subject, appear to agree in that established opinion; but they seem rather to have yielded to the authority of Sir Isaac Newton and other theorists, than to have appealed to the operations of their own art, from which the real cause and origin of colours is obviously deducible."†

† *Mancheff's Mem. ii. p. 131.*

47. "The art of dyeing consists principally in covering white substances, from which light is strongly reflected, with transparent coloured media, which, according to their several colours, transmit more or less copiously the several rays reflected from the white substances.

(A) The passage from Hellot is the following. "At present we know only of two plants which afford a blue colour after their preparation. The one is the *isatis* or *glastum*, otherwise called *pastel* or *woad*. In the preparation of these plants, the fermentation is continued till the putrefactive process of all the parts of the plant, the root excepted, has been induced; consequently there takes place a separation of all their principles, with a new combination and arrangement of these same principles, from which results an assemblage of particles greatly divided, which being applied to any substance, reflect the light in a very different manner from what they did when those particles were combined with the other parts of the plant, previous to fermentation." *Art de la Teinture des Laines*, p. 117.

Of Colours, &c.

Coloured matters appear black by incident light.

Shewn by experiment.

Effect of colours on white bodies.

* *Ibid.*

stances. The transparent coloured media themselves reflect no light; and it is evident that, if they yielded their colours by reflecting instead of transmitting the rays, the whiteness or colour of the ground on which they are applied would not anywise alter or affect the colours which they exhibit. Such an erroneous conception of the principles of the art cannot fail greatly to obstruct its progress and improvement. All colouring matter is black when viewed by incident light, and all substances inclined to blackness, in proportion as they are copiously stored with tingeing particles.

48. As a farther illustration of this subject, we shall make another extract from the same author. "For the purpose," he observes, "of procuring masses made up of colouring particles, I reduced several transparent coloured liquors to a solid consistence by evaporation. When a gentle heat is employed in this operation, the colouring matter, which is thus concentrated, remains unimpaired, and capable of again imparting its colour unaltered, to other liquors. In this state the colouring particles reflect no colour; and as no light is transmitted through them, they are black. Among the liquors which I evaporated, were the tinctures and infusions of the colouring particles of red, purple, blue, and yellow flowers; of logwood, Brazilwood, fustic, turmeric, red sanders, alkanet, sap-green, kermes, and other transparent coloured liquors, which are capable of being reduced to a solid consistence, without undergoing such changes during their evaporation, as to render them opaque.

49. "White paper and linen may be tinged by dipping them in the infusions of flowers of different colours; and by spreading upon those white grounds the expressed juices of such flowers, their colours may be communicated to the paper and the linen. These means of tingeing are somewhat similar to the application of vegetable dyes to linen, and of transparent water colours to paper, many of which consist of the colouring matter of plants, such as indigo, litmus, gamboge, &c.

50. The consideration of these white substances affords much insight into the manner in which the natural colours of vegetables are produced. When the colouring matter of plants is extracted from them, the solid fibrous parts, thus divested of their covering, display that whiteness which is their distinguishing character. White paper and linen are formed of such fibrous vegetable matter, which is bleached by dissolving and detaching the heterogeneous coloured particles. When these are dyed or painted with vegetable colours, it is evident that they do not differ in their manner of acting on the rays of light, from natural vegetable bodies, both yielding their colours, by transmitting through the transparent coloured matter the light which is reflected from the white ground; for it appears, that no reflective power resides in any of their component parts, except in their white matter only*.

51. Thus then it appears, that the colouring particles with which stuffs are dyed, being transparent, the reflected light must proceed entirely from the fibres of the cloth or stuff which are covered with the transparent colouring matter. If the stuff be already of a black colour, no other colour can be communicated to it; because it has not the power of reflecting any co-

lour, and therefore it cannot transmit any. And if the stuff were of a red, blue, or yellow colour, it could not be dyed of any other colour excepting black; because the red, blue, or yellow rays only being reflected, no other rays could be transmitted. But these observations will strictly apply only when the whole of the surface of the cloth is of one uniform colour. They point out also the importance of the cloth being of a pure white colour before it is dyed, especially when it is to be dyed any bright colour; for then the rays are copiously reflected; so that any colour may be given by combining with it any colouring matter which has the power of transmitting only particular rays.

52. As it is by the force of affinity that the colouring matter enters into combination with the stuffs which are dyed, that this chemical action be complete, it is necessary that the matter be in a state of minute division. No permanent colour could be produced by merely covering the surface of the fibres of the stuffs with the colouring substance; for unless it adhere so strongly that it cannot be separated by mechanical action, or by means of any of the processes to which dyed stuffs must be subjected, it must appear to be of little value, and the object in view is not obtained. To allow the chemical action to take place between the colouring matter and the stuffs, the former is dissolved in some liquid, for which it has a weaker attraction than for the stuffs; so that when they are immersed in the solution, the colouring matter, in consequence of the stronger attraction which it has for the stuffs than for the solvent, combines with them, and thus they are dyed; and the facility with which this combination takes place, must obviously depend on the affinity between the colouring matter and the liquid holding it in solution, and the affinity between the cloth and the colouring matter. When these two affinities balance each other, no change takes place; but when the affinity between the stuff and the colouring matter prevails, the combination is effected, and the process proceeds more or less rapidly according to the force of this affinity.

53. Coloured bodies are compounds; and several substances enter into their composition. In all coloured bodies some of the component parts have a strong affinity for oxygen, which they attract from the atmosphere. The permanency of a colour consists in its power of resisting the action of all substances to which it is exposed. This power varies greatly according to the nature of the colour and the kind of stuff. The durability of the same colours on animal and vegetable matters is very different. But before the colour of a body can be permanent, all its component parts must be combined together by such strong affinities, that the substances which come in contact with them shall not be able to unite with any of these parts, and thus form a new compound. Should such a decomposition take place, the colour of the body cannot be permanent; and if the decomposition be suddenly effected, the colour is immediately destroyed. If the new combination proceeds slowly, the decay of the colour is also slow and gradual.

54. The combination of oxygen with some of the component parts of a coloured body, is one of the principal causes of the change of colours. The action

Of Colours, &c.

Stuffs to be dyed should be pure white.

Colouring matter applied to stuffs should be minutely divided.

Coloured bodies compounds.

The combination of oxygen produces a change of colour.

